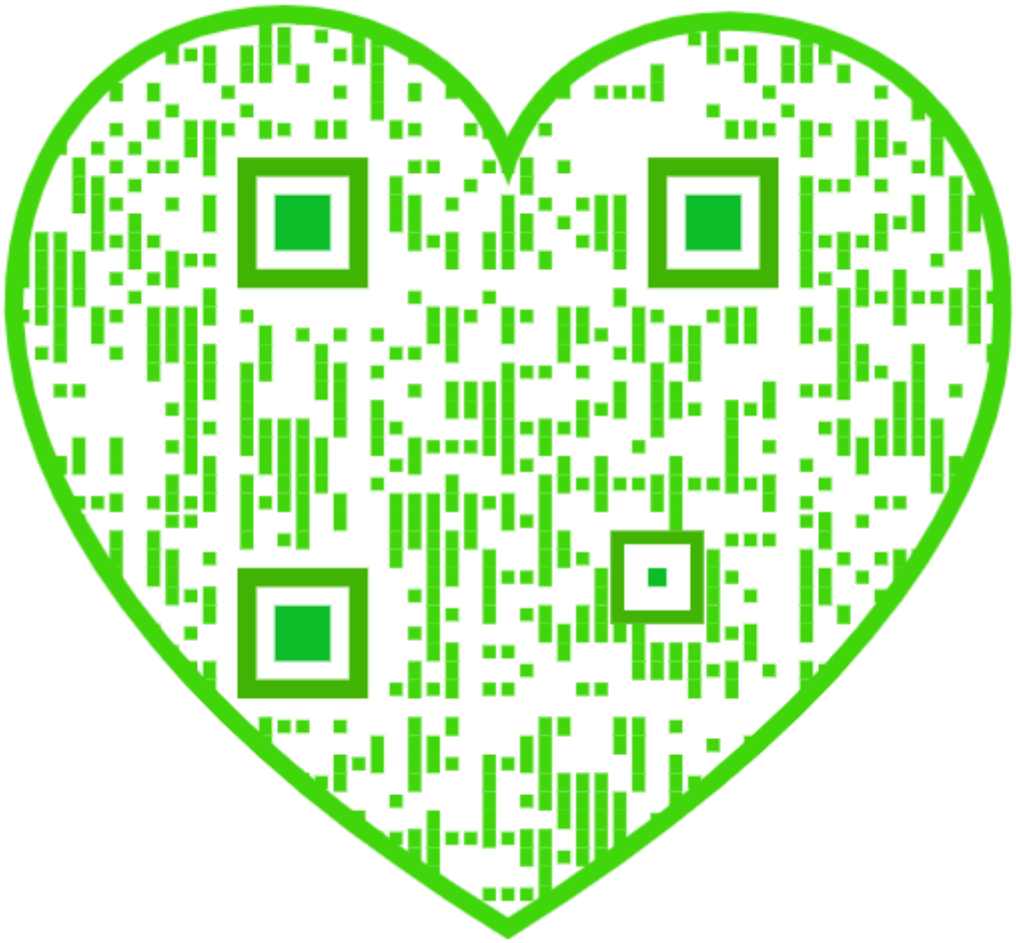

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JANUARY 1923

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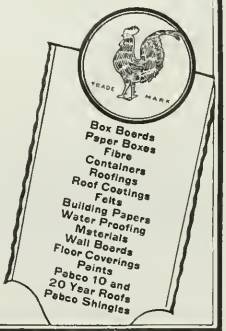

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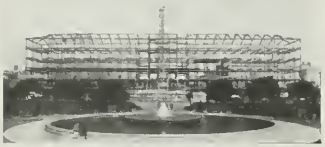

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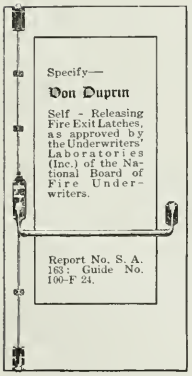
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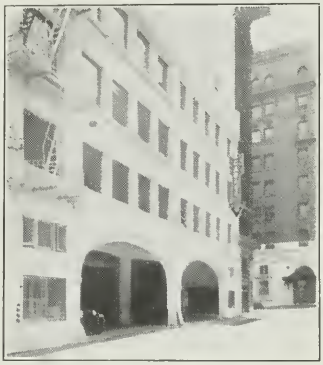

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Write for Our Bulletin
PACIFIC FOUNDRY COMPANY
HARRISON and EIGHTEENTH STREETS SAN FRANCISCO

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Monson Bros., 251 Kearny St., San Francisco.
Geo. Wagner, 251 Kearny St., San Francisco.
T. B. Goodwin, 180 Jessie St., San Francisco..
McLeran & Co., R., Hearst Bldg., San Francisco.
Robert Trost, 26th and Howard Sts., San Francisco.
I. M. Sommer, 401 Balboa Bldg., San Francisco.
Jas. L. McLaughlin, 251 Kearny St., San Francisco.
Alfred H. Vogt, 185 Stevenson St., San Francisco.
Lange and Bergstrom, Sharon Bldg., San Francisco and Washington Bldg., Los Angeles.
David Nordstrom, 4146 Emerald Street, Oakland.
The Holton Company, 806 Syndicate Building, Oakland.

CONTRACTORS' EQUIPMENT
Edward R. Bacon Co., 51 Minna St., San Francisco, and Los Angeles.

CONVEYING MACHINERY
Messe & Gottfried, San Francisco, Los Angeles, Portland and Seattle.

CONVENIENCE OUTLETS
Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St.

CORK TILE
Van Fleet-Freear Co., Sharon Bldg., San Francisco.

CRUSHED ROCK
Coast Rock & Gravel Co., Call-Post Bldg., San Francisco.

CURTAINS—STEEL, ROLLING, FIREPROOF
J. G. Wilson Corp., 621 N. Broadway, Los Angeles.

DAMP-PROOFING AND WATERPROOFING
Armorite Damp Resisting Paint, made by W. P. Fuller & Co., San Francisco.
"Imperial," manufactured by Brooks & Docrr, Merchants National Bank Building, San Francisco.
Samuel Cabot Co., Boston; represented in San Francisco by Pacific Materials Co., Underwood Bldg., San Francisco.
"Pabco" Damp-Proofing Compound, sold by the Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.
Western Asbestos Magnesia Company, 25 South Park, San Francisco.
The Barlith Company, 690 Mills Building, San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco

DOOR HANGERS
McCabe Door Hanger Company, leading hardware stores.
Pitcher Hanger, sold by National Mill & Lumber Co., 326 Market St., San Francisco.
Stanley Works, New Britain, Conn., Monadnock Bldg., San Francisco.
Richards-Wilcox Mfg. Co., Underwood Bldg., San Francisco.

DOORS—VANISHING
W. L. Evans, 700 Block B., Washington, Ind.

DRAIN PIPE AND FITTINGS
"Corrosiron" Acid Proof, manufactured by Pacific Foundry Co., Harrison and 18th Sts., San Francisco.

DRINKING FOUNTAINS
Haws Sanitary Drinking Faucet Co., 1808 Harmon St., Berkeley, and C. F. Weber & Co., San Francisco and Los Angeles.
Crane Company, San Francisco, Oakland, and Los Angeles.
Pacific Porcelain Ware Co., 67 New Montgomery St., San Francisco.
Haines, Jones & Cadbury Co., 857 Folsom St., San Francisco.

DUMB WAITERS
Spencer Elevator Company, 166-7th St., San Francisco.
San Francisco Elevator Company, Inc., 860 Folsom St., San Francisco.

ELECTRICAL APPLIANCE SUPPLIES
Electric Appliance Company, 809 Mission St., San Francisco.

ELECTRICAL CONTRACTORS
Butte Electrical Equipment Company, 530 Folsom St., San Francisco.
Butte Electric & Manufacturing Co., 534 Folsom St., San Francisco.
Central Electric Company, 185 Stevenson St., San Francisco.
NePage, McKenny Co., 589 Howard St., San Francisco.
Newbery Electrical Co., 359 Sutter St., San Francisco.
Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.
Globe Electric Works, 1959 Mission St., San Francisco.
M. E. Ryan, Redwood City, and 520 Clunie Bldg., San Francisco.
H. S. Tittle, 766 Folsom St., San Francisco.
Brown-Langlais Electrical Construction Co., 313 Fifth Street, San Francisco.
A. F. Wells Company, 155 Second St., San Francisco.

ELEVATOR MOTORS AND CONTROL
Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., and First National Bank Bldg., San Francisco, Calif.

ELECTRIC PLATE WARMER
The Prometheus Electric Plate Warmer for residences, clubs, hotels, etc. Sold by M. E. Hammond, Pacific Bldg., San Francisco.

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Drendell Electrical & Mfg. Co., 1345 Howard St., San Francisco.
Western Electric Safety Mfg. Co., Inc., 247 Minna St., San Francisco.

ELECTRIC TOWEL
The AIRDRY Electric Towel for clubs, office buildings, hotels, schools, etc., represented on Pacific Coast by Airdry Co., of California, 165 Montgomery St., San Francisco.

ELEVATORS
Otis Elevator Company, Stockton and North Point, San Francisco.
Spencer Elevator Company, 166-7th St., San Francisco.
San Francisco Elevator Co., 860 Folsom St., San Francisco.

ELEVATOR DOOR HARDWARE
Richards-Wilcox Mfg. Co., Underwood Bldg., San Francisco.

ENGINEERS—CONSULTING, ELECTRICAL, MECHANICAL
Chas. T. Phillips, 550 Montgomery St., San Francisco.
Hunter & Hudson, Rialto Bldg., San Francisco.
Ralph E. Dodge, 251 Kearny St., San Francisco.
Meese & Gottfried, San Francisco, Seattle, Portland, Los Angeles.

FANS AND BLOWERS
Tiltz Engineering and Equipment Co., 479 Monadnock Building, San Francisco.

FAIENCE TILE
Tropico Potteries, Inc., Glendale, Cal.

FELTS
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

FENCES—WIRE AND IRON
Standard Fence Company, 432 Bryant, San Francisco and 60th and Lowell Sts., Oakland.

FIRE EXIT LATCHES
Vonnegut Hardware Co., Indianapolis, Ind., represented in San Francisco by Abeel Jensen Co., Call Building.

FIRE ESCAPES
Michel & Pfeffer Iron Works, 1415 Harrison St., San Francisco.
Palm Iron & Bridge Works, Sacramento.
Western Iron Works, 141 Beale St., San Francisco.

FIRE-PROOF DOORS
Forderer Cornice Works, 269 Potrero Ave., San Francisco.
U. S. Metal Products Co., 330-10th St., San Francisco.
Kinnear Mfg. Co., represented in San Francisco by Pacific Materials Co., Underwood Bldg.
The J. G. Wilson Corporation, 621 North Broadway, Los Angeles.

FIRE SPRINKLERS—AUTOMATIC
Fire Protection Engineering Co., 67 Main St., San Francisco.
Grinnell Company of the Pacific, 453 Mission St., San Francisco.
Independent Automatic Sprinkler Co., 72 Natoma St., San Francisco.
Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.

FIRE RETARDING PAINT
The Paraffine Companies, Inc., 34 First St., San Francisco.

FIXTURES—BANK, OFFICE, STORE, ETC.
Home Manufacturing Company, 543 Brannan St., San Francisco.
The Fink & Schindler Co., 218-13th St., San Francisco.
Mullen Manufacturing Co., 64 Rausch St., San Francisco.
C. F. Weber & Co., 985 Market St., San Francisco, and 210 N. Main St., Los Angeles, Cal.

FLOOR CLIPS
Bull Dog Floor Clip Sales Co., 77 O'Farrell St., San Francisco, and 600 Metropolitan Bldg., Los Angeles.

FLOORS—TILE, CORK, ETC.
Mangrum & Otter, 827 Mission St., San Francisco.
Van Fleet-Freear Co., 61 New Montgomery St., San Francisco, and 420 S. Spring St., Los Angeles.

FLOOR VARNISH
Bass-Hueter and San Francisco Pioneer Varnish Works, 816 Mission St., San Francisco.
Fifteen for Floors, made by W. P. Fuller & Co., San Francisco.
Standard Varnish Works, Chicago, New York and San Francisco.
R. N. Nason & Co., San Francisco and Los Angeles.
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.
Murphy's Transparent Floor, Uhl Bros., San Francisco, Seattle, Portland, Oakland, Los Angeles.

FLOORS—HARDWOOD
Oak Flooring Manufacturers' Association of the United States, Ashland Block, Chicago, Ill.
Cadwallader, Gibson Co., 234 Steuart St., San Francisco.
Parrott & Co., 320 California St., San Francisco.
Stimble Hardwood Company, 511 First St., Oakland.
E. L. Bruce Co., Manufacturers, Memphis, Tenn.
White Bros., 5th and Brannan Sts., San Francisco.

FLOOR TREATMENT—HARDWOOD, COMPOSITION AND CONCRETE
Minwax Co., Inc., 22 Battery St., San Francisco and 653 S. Clarence St., Los Angeles.

FLOORS—MASTIC—FLOOR COVERING
Hill, Hubbell & Company, 115 Davis St., San Francisco.
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

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- S. T. Johnson Co., 1337 Mission St., San Francisco.
- S. F. Bowser & Co. Inc., 612 Howard St., San Francisco.
- Wayne Tank and Oil Co., 631 Howard St., San Francisco.

FURNACES—WARM AIR
- Mangrum & Otter, 827 Mission St., San Francisco.
- Montague Range and Furnace Co., 826 Mission St., San Francisco.

FURNITURE—OFFICE, SCHOOL, CHURCH, ETC.
- Home Manufacturing Company, 543 Brannan St., San Francisco.
- C. F. Weber & Co., 985 Market St., San Francisco.
- F. W. Wentworth & Co., 539 Market St., San Francisco.
- W. & J. Sloane, 216 Sutter St., San Francisco.
- Phoenix Desk & Chair Company, Mission St., San Francisco.
- Western States Seating Co., 133 Kearny St., San Francisco.

GARAGE HARDWARE
- The Stanley Works, New Britain, Conn., Coast sale offices, San Francisco, Los Angeles and Seattle, Wash.
- Richards-Wilcox Mfg. Co., Aurora, Ill., and Underwood Bldg., San Francisco.

GLASS
- American Window Glass Co., represented by L. H. Butcher Co., 862 Mission St., San Francisco.
- Cobbledick-Kibbe Glass Co., 175 Jessie St., San Francisco.
- Fuller & Goepp, 32 Page St., San Francisco, and Jackson, at Eleventh St., Oakland.
- W. P. Fuller & Company, all principal Coast cities.

GRADING, WRECKING, ETC.
- Dolan Wrecking & Construction Co., 1607 Market St., San Francisco.

GRANITE
- Raymond Granite Co., Potrero Ave., and Division St., San Francisco.

GRAVEL AND SAND
- Coast Rock & Gravel Co., Call-Post Bldg., San Francisco.
- Del Monte White Sand, sold by Del Monte Properties Co., Crocker Bldg., San Francisco.

GYMNASIUM EQUIPMENT—LOCKERS, ETC.
- Ellery Arms Co., 583 Market St., San Francisco.
- George Teask, Durand Steel Locker Co., 76 Sacramento St., San Francisco.

HARDWARE
- Joost Bros., agents for Russell & Erwin Hardware, 1053 Market St., San Francisco.
- The Stanley Works, New Britain, Conn.; Coast sales offices, San Francisco, Los Angeles, and Seattle, Wash.
- Corbin hardware, sold by Palace Hardware Co., 581 Market St., San Francisco.
- Richards-Wilcox Mfg. Co., Aurora, Ill., Ewing-Lewis Co., 626 Underwood Bldg., San Francisco.
- Vonnegut hardware, sold by Abeel-Jensen Co. Call Bldg., San Francisco.

HEATING AND VENTILATING CONTRACTORS
- Atlas Heating and Ventilating Company, Inc., Fourth and Freelon Sts., San Francisco.
- Alex Coleman, 706 Ellis St., San Francisco.
- Gilley-Schmid Company, 198 Otis St., San Francisco.
- Hateley & Hateley, Mitau Bldg., Sacramento.
- Mangrum & Otter, 827-831 Mission St., San Francisco.
- Lawson & Drucker, 450 Hayes St., San Francisco.
- Carl T. Doell, 467 21st St., Oakland.
- Luppen, Hawley & Thing, 906 7th St., Sacramento.
- William F. Wilson Co., 328 Mason St., San Francisco.
- Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.
- Scott Company, 243 Minna St., San Francisco.

HEATING & VENTILATING EQUIPMENT
- W. S. Haines & Co.'s steam specialties. O. M. Simmons Company, 115 Mission St., San Francisco.
- Hulting, Hurst & Hulting, representing Jas. P. Marsh Co., Monadnock Bldg., San Francisco.
- Illinois Engineering Co., Pacific Bldg., San Francisco.
- Tiltz Engineering & Equipment Co., 470 Monadnock Bldg., San Francisco.
- Williams Radiator Company, 754 Monadnock Bldg., San Francisco.
- W. H. Picard, 5656 College Ave., Oakland.

HEATERS, WATER-GAS, ELECTRIC, ETC.
- Pittsburg Water Heater Company, 478 Sutter St., San Francisco.
- Rudd Automatic Water Heater, sold by Rudd Heater Company, 431 Sutter St., San Francisco.
- Wizard Sales Company, 833 Market St., San Francisco.

HEATERS, GAS GRATES, RADIATORS, ETC.
- General Gas Light Company, 768 Mission St., San Francisco.
- Ra-Do Fumeless Gas Radiators, Potter Radiator Corporation, 478 Sutter St., San Francisco
- Pure Air Gas Heating Company, 101 Battery St., San Francisco.
- Humphrey Radiantfire, sold by Rudd Heater Company, 431 Sutter St., San Francisco.
- General Gas Light Company, 768 Mission St., San Francisco.
- Williams Radiator Company, "Gas Steam Radiators," 5 Monadnock Building, Arcade, San Francisco.
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Gladding, McBean & Co., San Francisco, Los Angeles, Oakland and Sacramento.
Los Angeles Pressed Brick Co., Frost Bldg., Los Angeles.

HOSPITAL FIXTURES
Mott Company of California, 553 Mission St., San Francisco.

HOSPITAL SIGNAL SYSTEMS
Chicago Signal Co., represented by Garnett Young & Co., 612 Howard St., San Francisco.
Holtzer-Cabot Electric Company, San Francisco Branch, 408 Claus Spreckles Building.

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Cyclops Iron Works, 837 Folsom St., San Francisco.

INDUSTRIAL LIGHTING EQUIPMENT
Westinghouse Electric and Mfg. Co., East Pittsburgh, Pa., and First National Bank Building, San Francisco.

INGOT IRON
"Armco" brand, manufactured by American Rolling Mill Company, Middletown, Ohio, and 10th and Bryant Sts., San Francisco.

INSPECTIONS AND TESTS
Robert W. Hunt & Co., 251 Kearny St., San Francisco.

INSULATION—CORK
Van Fleet-Freear Co., Sharon Bldg., San Francisco.

INSURANCE BROKERS
William Healey & Son, Crocker Bldg., San Francisco.

JAIL EQUIPMENT
Ralston Iron Works, 20th and Indiana Sts., San Francisco.

LAMP POSTS, ELECTROLIERS, ETC.
J. L. Mott Iron Works, 553 Mission St., San Francisco.

LANDSCAPE ARCHITECT
Emerson Knight, 704 Market St., San Francisco.

LANDSCAPE GARDENERS
MacRorie-McLaren Co., 514-516 Phelan Bldg., San Franrisco.

LATHING AND PLASTERING
MacGruer & Simpson, 226 Tehama St., San Francisco.
A. Knowles, Call-Post Bldg., San Francisco.

LATHING MATERIAL—WIRE,ETC.
Pacific Materials Co., 525 Market St., San Francisco.
Truscon Steel Co., Tenth St., near Bryant, San Francisco.
Wickwire Spencer Steel Corporation, 111 Townsend St., San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco

LIGHT, HEAT AND POWER
Great Western Power Company, Stockton St., near Sutter, San Francisco.
Pacific Gas & Electric Co., Sutter St., San Francisco.

LIGHTING FIXTURES
Thomas Day Company, Mission, near Third St., San Francisco, and Oakland.
Electric Appliance Company, 809 Mission St., San Francisco.
Roberts Mfg. Co., 663 Mission St., San Francisco.

LIME
Henry Cowell Lime & Cement Co., 2 Market St., San Francisco.

LINOLEUM
D. N. & E. Walter & Co., 562 Mission St., San Francisco.
The Paraffine Companies, factory in Oakland; office, 34 First St., near Market, San Francisco.
W. & J. Sloane, 216 Sutter St., San Francisco.

LUMBER
Dudfield Lumber Co., Palo Alto, Cal.
Hart-Wood Lumber Co., Fifth and Berry Sts., San Francisco.
Pacific Manufacturing Company, San Francisco, Oakland, Los Angeles and Santa Clara.
Pope & Talbot, foot of Third St., San Francisco.
Santa Fe Lumber Co., 16 California St., San Francisco.
Sunset Lumber Company, First and Oak Sts., Oakland.
White Bros., 5th and Brannan Sts., San Francisco.

MAIL CHUTES
American Mailing Device Corp., represented on Pacific Coast by Waterhouse-Wilcox Co., 523 Market St., San Francisco.

MANTELS—WOOD, TILE, ETC.
Mangrum & Otter, 827-831 Mission St., San Francisco.
Fink & Schindler, 218-12th St., San Francisco.

MANUAL TRAINING EQUIPMENT
Richards-Wilcox Mfg. Co., Ewing-Lewis Co., 626 Underwood Bldg., San Francisco.

MARBLE
American Marble and Mosaic Co., 25 Columbus Square, San Francisco.
Ray Cook Marble Company, foot of Powell St., Oakland.
Joseph Musto Sons, Keenan Co., 535 N. Point St., San Francisco.
Vermont Marble Co., Coast branches, San Francisco, Portland and Tacoma.
Tompkins-Kiel Marble Company, 505 Fifth Ave., New York; also Chicago, Philadelphia and San Francisco.
Columbia Marble Co., 413 Rialto Bldg., San Francisco.

METAL DOORS AND WINDOWS
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U. S. Metal Products Co., 330 Tenth St., San Francisco.

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John R. Steffens-Lomax Co., 951 Monadnock Bldg., San Francisco.

MILL WORK
Dudfield Lumber Co., Palo Alto, Cal.
Pacific Manufacturing Company, San Francisco, Los Angeles, Oakland and Santa Clara.
National Mill and Lumber Co., San Francisco and Oakland.
The Fink & Schindler Co., 218-13th St., San Francisco.
Lannom Bros. Mfg. Co., 5th and Magnolia Sts., Oakland.

NOTARY PUBLIC
William Healey & Son, 208 Crocker Bldg., San Francisco.

OIL BURNERS
Bunting Iron Works, 1215 First Nat. Bank Bldg., San Francisco.
Coen Co., Inc., 112 Market St., San Francisco
Fess System Co., 220 Natoma St., San Francisco.
S. T. Johnson Co., 1337 Mission St., San Francisco.
G. E. Witt Co., 862 Howard St., San Francisco.
W. S. Ray Mfg. Company, 29 Spear St., San Francisco, and 2206 San Pablo Ave., Oakland.
Rotary Oil Burner Company, 159 Twelfth St., Oakland.

OIL STORAGE AND DISTRIBUTING STATIONS
S. F. Bowser & Co., Inc., 612 Howard St., San Francisco.
S. T. Johnson Co., 1337 Mission St., San Francisco.
Wayne Oil Tank & Pump Co., 631 Howard St., San Francisco; 830 S. Los Angeles St., Los Angeles.

ORNAMENTAL IRON AND BRONZE
California Artistic Metal and Wire Co., 349 Seventh St., San Francisco.
Federal Ornamental Iron and Bronze Co., 16th St., and San Bruno Ave., San Francisco.
Michel & Pfeffer Iron Works, 1415 Harrison St., San Francisco.
Palm Iron & Bridge Works, Sacramento.
C. J. Hillard Company, Inc., 19th and Minnesota Sts., San Francisco.
Schrader Iron Works, Inc., 1247 Harrison St., San Francisco.

OVERHEAD CARRYING SYSTEMS
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Vonnegut hardware, sold by Abeel-Jensen Co. Call Bldg., San Francisco.

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Premier Graphite Paint and Pioneer Brand Red Lead, made by W. P. Fuller & Co., San Francisco.
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Nitrose Paint, Clifford W. L. Day, Pacific Coast representative, 324 Monadnock Bldg., San Francisco.

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D. Zelinsky & Sons, San Francisco and Los Angeles.
The Tormey Co., 681 Geary St., San Francisco.
A. Quandt & Son, 374 Guerrero St., San Francisco.

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Magner Bros., 414-424 Ninth St., San Francisco.
Bass-Hueter Paint Co., Mission, near Fourth St., San Francisco and all principal Coast cities.
R. N. Nason & Company, San Francisco, Los Angeles, Portland and Seattle.
W. P. Fuller & Co., all principal Coast cities.
"Satinette," Standard Varnish Works, 55 Stevenson St., San Francisco.
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

PARTITIONS—FOLDING AND ROLLING
J. G. Wilson Corporation, 621 N. Broadway, Los Angeles; Waterhouse-Wilcox Co., Underwood Bldg., San Farncisco.

PILE DRIVING AND DREDGING
Western Construction Company, 24 California St., San Francisco.

PLASTERING CONTRACTORS
A. Knowles, Call Bldg., San Francisco.
MacGruer & Simpson, 266 Tehama St., San Francisco.

PLUMBING CONTRACTORS
Alex Coleman, 706 Ellis St., San Francisco.
Gilley-Schmid Company, 198 Otis St., San Francisco.
Doell, Carl T., 467 21st St., Oakland.
Hateley & Hateley, Mitau Bldg., Sacramento.
Scott Co., Inc., 243 Minna St., San Francisco.
Wm. F. Wilson Co., 328 Mason St., San Francisco.
Luppen, Hawley & Thing, 906 7th St., Sacramento.
H. Mueller Manufacturing Company, 635 Mission St., San Francisco.
Holbrook, Merrill & Stetson, 64 Sutter St., San Francisco.
J. L. Mott Iron Works, D. H. Gulick, selling agent, 553 Mission St., San Francisco.
Pacific Sanitary Manufacturing Co., 67 New Montgomery St., San Francisco.
West Coast Porcelain Manufacturers, Oceanic Bldg., San Francisco.

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POWER TRANSMITTING MACHINERY
Meese & Gottfried, San Francisco, Los Angeles, Portland, Ore., and Seattle, Wash.

PUMPS—HAND OR POWER
Chicago Pump Co., represented by Garnett, Young & Co., 612 Howard St., San Francisco.
Simonds Machinery Co., 117 New Montgomery St., San Francisco.
Ocean Shore Iron Works, 558 Eighth St., San Francisco.
Pelton Waterwheel Co., 2022 Harrison St., San Francisco.
S. F. Bowser & Co., Inc., 612 Howard St., San Francisco.
S. T. Johnson Co., 1337 Mission St., San Francisco.
Wayne Tank & Pump Co., 631 Howard St., San Francisco; 830 S. Los Angeles St., Los Angeles.
Byron Jackson Iron Works, 55 New Montgomery St., San Francisco.
Tokheim Oil Tank & Pump Company, 806 Sharon Building, San Francisco.

RADIO EQUIPMENT
Electric Appliance Company, 809 Mission St., San Francisco.

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Edward L. Soule, Rialto Bldg., San Francisco.
Badt-Falk & Co., Call Bldg., San Francisco.
Judson Iron Works, San Francisco and Oakland.
Gunn, Carle & Co., Inc., 444 Market St., San Francisco.
Pacific Coast Steel Co., Rialto Bldg., San Francisco.
Truscon Steel Co., 527-10th St., San Francisco.

REFLECTORS
I. P. Frink, Inc., 77 O'Farrell St., San Francisco.

REFRIGERATORS
McCray Refrigerator Company San Francisco office, 765 Mission St.

ROOFING AND ROOFING MATERIALS
"Malthoid" and "Ruberoid," also "Pabco" ten and twenty year roofs, manufactured by the Paraffine Companies, Inc., San Francisco.
United Materials Co., Sharon Bldg., San Francisco.
H. H. Robertson Co., Hobart Bldg., San Francisco.
Jones Brothers Asbestos Supply Co., 512 Second St., San Francisco.
Johns-Manville Inc., of California, 500 Post St., San Francisco.
Western Asbestos Magnesia Company, 25 South Park, San Francisco.

RUBBER TILING—INTERLOCKING
New York Belting & Packing Co., 518-19 Mission St., San Francisco.

RUGS & CARPETS
W. & J. Sloane, 216 Sutter St., San Francisco.

SAFETY TREADS
Pacific Materials Co., 525 Market St., San Francisco.

SAND
Coast Rock & Gravel Co., Call Bldg., San Francisco.
Del Monte White Sand, Del Monte Properties Co., 401 Crocker Bldg., San Francisco.

SASH AND CABLE CHAINS
Smith & Egge Mfg. Co., Bridgeport, Conn. Coast agents, Rawlins & Smith, San Francisco and Los Angeles.

SAFES AND VAULTS
Hermann Safe Company, 216 Fremont St., San Francisco.

SCALES
Toledo Scale Company, 676 Mission St., San Francisco.

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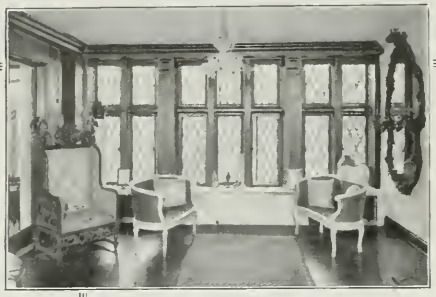

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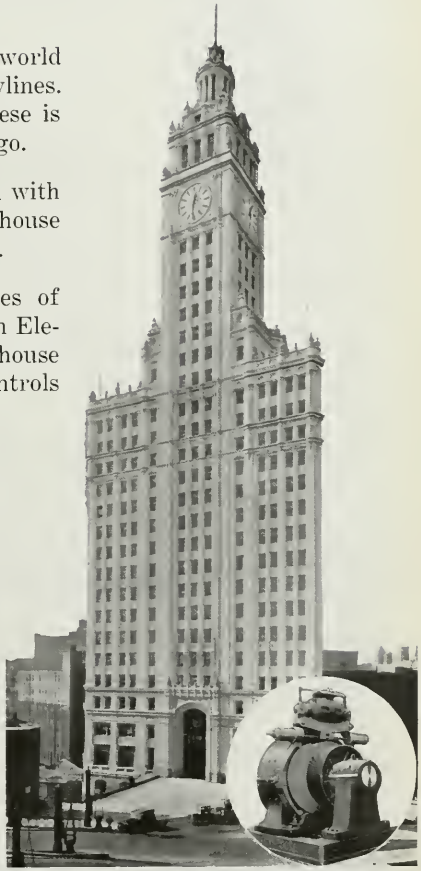

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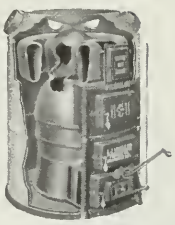

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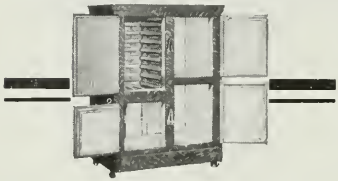

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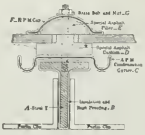

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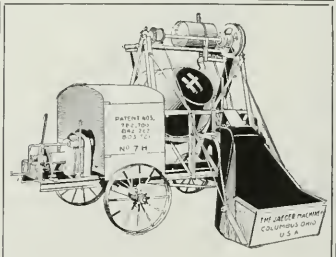

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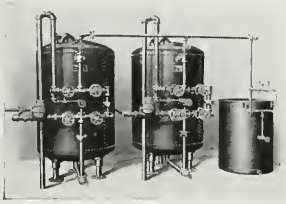

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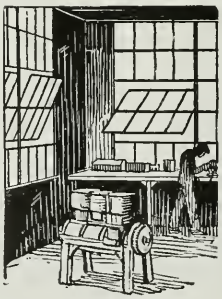

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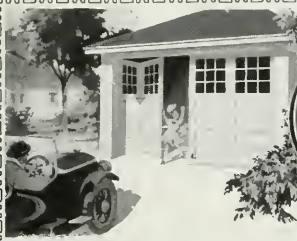

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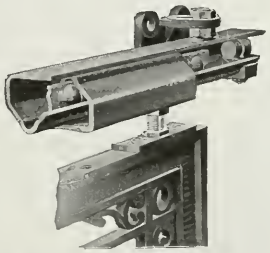

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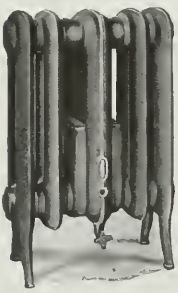

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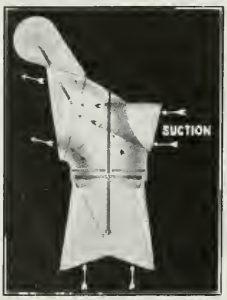

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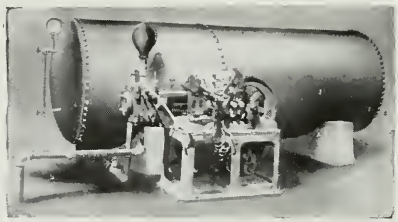

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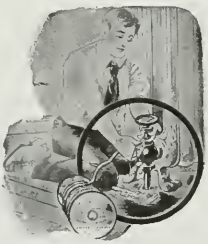

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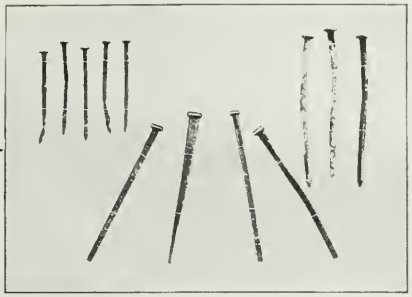

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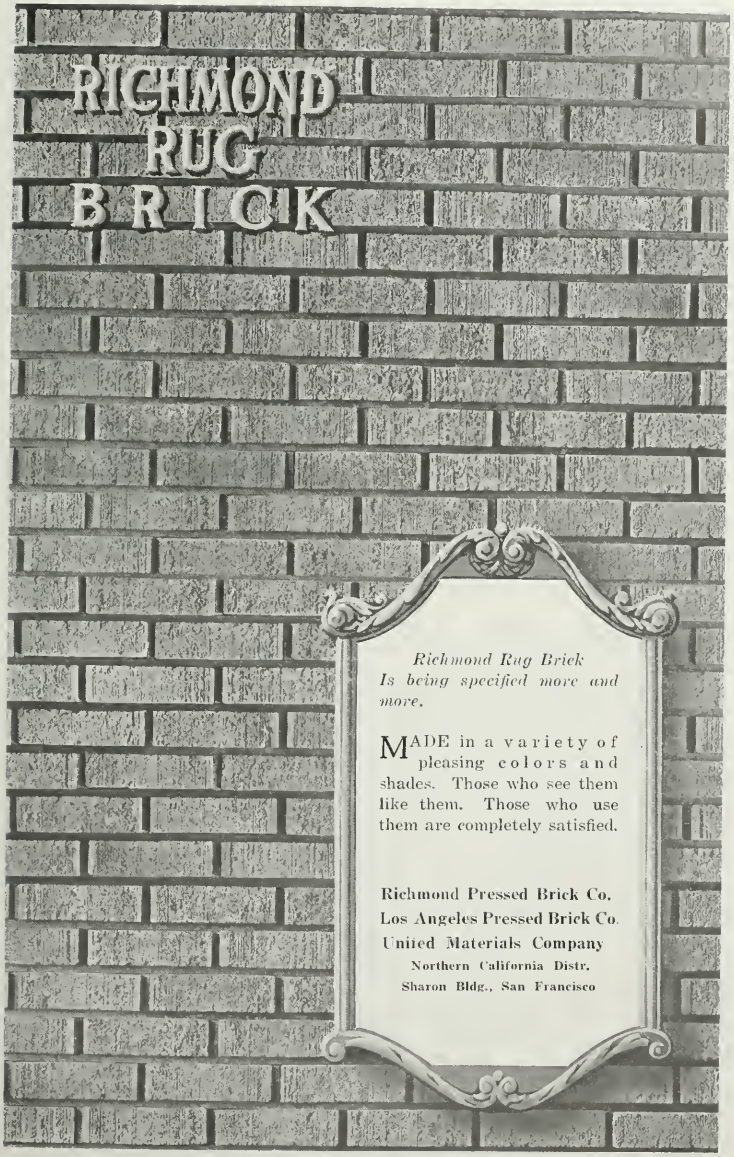
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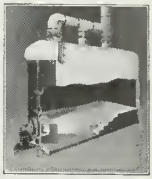

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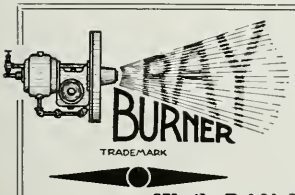

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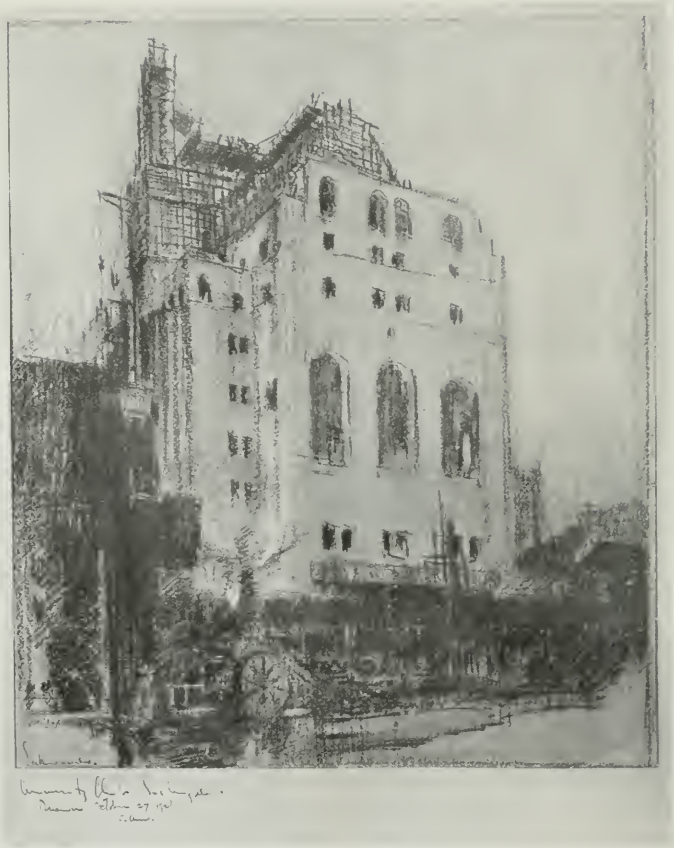
Published Monthly by
THE ARCHITECT and ENGINEER Inc.
626-627 Foxcroft Building San Francisco
W. J. Kierulff, *President* — Frederick W. Jones, *Vice-President* — L. B. Plenthorwood, *Secretary*



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JANUARY
1923

VOL. LXXII
No. 1

A Notable Architectural Achievement — The University Club of Los Angeles*

By IRVING F. MORROW

WE crave beauty and expressiveness—those of us whose native sense of spiritual and intellectual values has not been wholly suppressed by irrelevant pecuniary standards. For all building which transcends mere building, be it ever so slightly—for all building which exhibits a recognizable modicum of that consideration which merits the name "design"—we are duly, sometimes exorbitantly, grateful. But the architecture which surrounds us awakens, for the most part, enthusiasms which are transitory, and relapses into place among things innocuous, or at best merely agreeable. The humblest and most fragile manifestation of the real spirit of design is an asset not to be undervalued, but the creation of a source of enduring satisfaction is an event. Only on occasion are we accorded a building which seems to demand, or even to warrant, earnest inquiry into its motives and serious analysis of results.

The new University Club of Los Angeles is such a building. Viewed narrowly as a solution of its particular problem, it is an architectural achievement of substantial importance. But it is one of those monuments whose magnitude and merits raise it above its exclusive purpose into the rank of a public asset. If it performed no other service, it would demonstrate that street architecture is not of necessity uniformly flat, thin, and featureless, save for superfluous and vulgar excrescences. The injection of life, spirit, buoyancy, romance into a modern city's dingy and stupid midst is a public service. Disinterested, uninformed passers-by

*The photographs of the University Club here published were taken by William Clark and Oscar Maurer.

stop before the University Club and inquire its nature and purpose—the first time, perhaps, they have known a spontaneous architectural reaction —at least in town. (The most dispiriting aspect of the modern city's stupidity is that people naively expect it.) To the intelligent and discerning who pass its way its poise and distinction must offer grateful relief from the ubiquitous clamorous monotony.

The University Club presented a complicated and perplexing architectural problem. Its membership draws upon the best educated classes

DINING ROOM ELEVATOR LOBBY, UNIVERSITY CLUB OF LOS ANGELES
Allison & Allison, Architects

of the community, and its function is dominantly social. It is a retreat, a community home, built around a real fellowship. But if the main problem seems spiritually broad and simple, on its practical side it becomes clouded by a multitude of exacting details. Add to this the fact that, although far removed in purpose and spirit from a commercial organization, the exigencies of its life require a location well within town. To maintain an essential simplicity and unity in meeting varied needs, all in a situation naturally uncongenial, became the architects' task. Long and careful consideration enjoined an informal type of architecture,

warm, quiet, intimate, romantic, unconstrained by irrelevant conventions, unencumbered by unessential parts and details, unobligated to useless expenditures, flexible in the disposition of minor parts. These were the broader considerations influencing the building's design, along with a more specific determination to maintain its integrity by keeping free of property lines, and to grace it with growing things.

It will not be proper to employ the customary architectural terminology and designate the resulting solution as a "plan," for the section

GLIMPSE OF DINING ROOM, UNIVERSITY CLUB OF LOS ANGELES
Allison & Allison, Architects

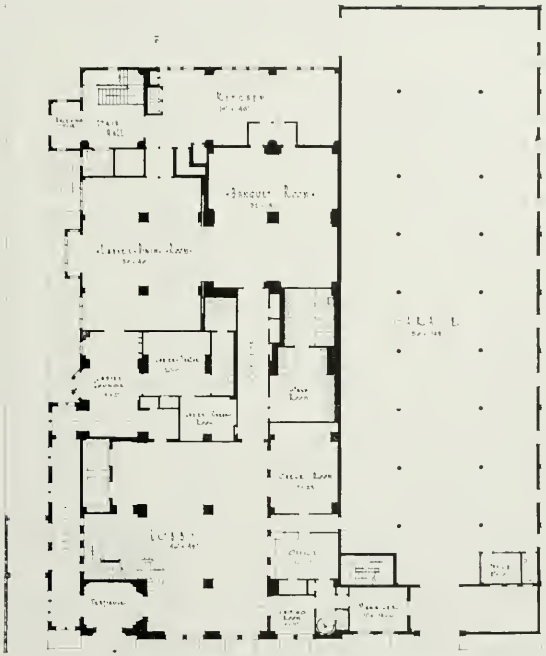
plays an equal and integral role. The conception is architectural in the highest sense; that is to say, it is three-dimensional and logically structural. Briefly considered, the organization is as follows. The club building proper stands free on all four sides, a structure of seven stories occupying the northern half of the lot. A driveway separates it from the northern line. The south half of the lot is occupied by the club garage, one story in height, on the roof of which is installed a semi-formal garden of ample size. All of the main rooms of the club are placed on the south side, thereby gaining the garden view and unobstructed sunlight

across its open space. The ground floor of the club comprises entrance lobby, office, check room, and women's dining room. The social life of the club centers on the second floor, embracing the main lounge room (on the garden level), writing room, library and silence room, and game rooms. The third floor contains the main dining room with kitchen. The floors above are devoted to sleeping rooms for resident members. The space in the high-pitched tile roof contains tanks, motors, and the other practical necessities which generally clutter the roofs of city buildings with unsightly pent-houses. The whole composition develops in concise and organic fashion from and around its four large features—garden, lobby, lounge room, and dining room.

The aspect which will probably first interest the architecturally trained visitor, particularly one whose habits of thought are circumscribed by the so-called classical tradition, is the number and variety of elements which have been successfully incorporated into a limited space without detriment to either breadth or unity. Quite apart from considerations of expression, it is questionable if any strictly formal style, with its inelastic preconceptions as to axes, balancing, etc., could have adapted itself to an economy so admirable. The large elements present themselves in their own right, unattended by "doublures," ante-rooms, vestibules, and other honorific paraphernalia. Minor necessities dovetail around and between these major ones with a quiet air of inevitability, though at what cost of ingenuity and honest labor only those who have attacked similar problems are prepared to appreciate. The result is a composition peculiarly direct and organic. Only minds prejudiced in behalf of some particular manifestation of architectural organization will cavail. It is compact, spacious, airy, all parts are logically located and in proper relative subordination, and there is no lapse from strict consistency and unity.

Another phase which will engage those versed in current methods of design, a corollary, perhaps, of the aspect just touched upon, is the degree to which the structure itself has been made to serve specifically architectural ends. If contemporary commercial usage squared with the theoretical principles inculcated in our schools, this should be no cause for comment. But everybody knows that in every-day practice "structure" and "design" are kept in water-tight (or thought-tight) compartments. Architecture, for all practical purposes, has become a matter of engineering and furring. Nothing which is structural is visible, and vice-versa. This building acquires an extraordinary sense of reality through the rejection of this architectural dualism. The exterior, instead of stopping at a cornice line, like an ostrich with his head in the sand, shows that the designer knew from the beginning what practical exigencies were to be met. All roof equipment and apparatus is taken care of in the steep gabled roof (which, in addition, lends the design a desirable domestic note). Stair and elevator towers, chimneys, etc., are recognized as integral, picturesque, and expressive parts of the building. Even that necessary evil, bete noir of innumerable architects, the fire escape, has with great ingenuity been impressed into the service of the design. Finally, one will not fail to note that a concrete structure has been ungrudgingly handled as concrete. Around the main entrance cast stone facing has been discreetly employed as a finish. The remainder of the building has not been so much as plastered in the ordinary sense. The surface has only been given a light dash of plaster, neces-

sary for waterproofing, through which the form marks in the concrete remain clearly discernible. In a design of this breadth and robustness these fall readily into place as pleasant texture, and endow the structure with an unusual sense of substance and reality. This same spirit has actuated the conception and handling of the interior, where furring and applied ornament are rare exceptions rather than the rule. The walls of all main portions are cement plaster applied to the structural concrete walls or tile partitions. All ceilings, save for one or two

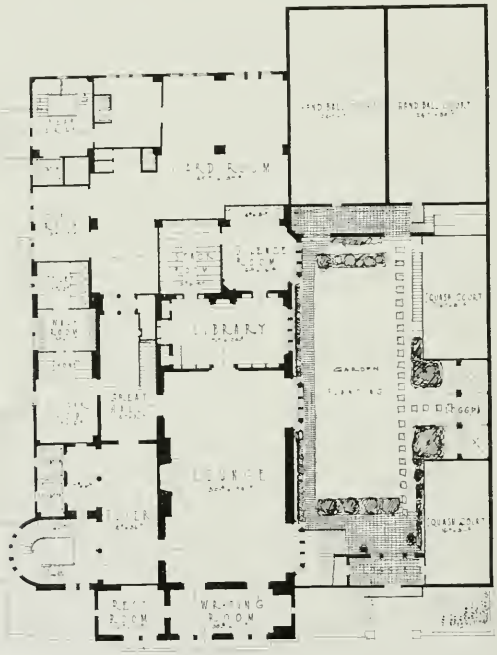


FIRST FLOOR PLAN, UNIVERSITY CLUB OF LOS ANGELES
Allison & Allison, Architects

minor wooden ones and the elaborate coffered one of the dining room, are painted directly on the structural concrete, which has been designed with attention to its esthetic as well as its engineering fitness. The ceiling of the main lounge is rich and noble, and particularly interesting effects have been obtained where the construction is a concrete joist system.

But no inventory of technical particulars can convey any real sense of the beauty of architectural organization and handling. Neither can the best of photographs. The simplicity of essential conception and

wealth of personal incident can be hinted at. But to sense the delicacy of plan relationships, the subtle modulation of the section line, the richness and sobriety of the color scheme, the ever prevalent feeling of tangible reality, one must enjoy the pleasure of leisurely strolling about the building itself. This paradoxically intangible quality designated as reality will bear stressing, because it here pervades exterior and interior to an unusual degree, and is, in fact, one of the rarest qualities in contemporary architecture. It is a comfortable psychological assurance that

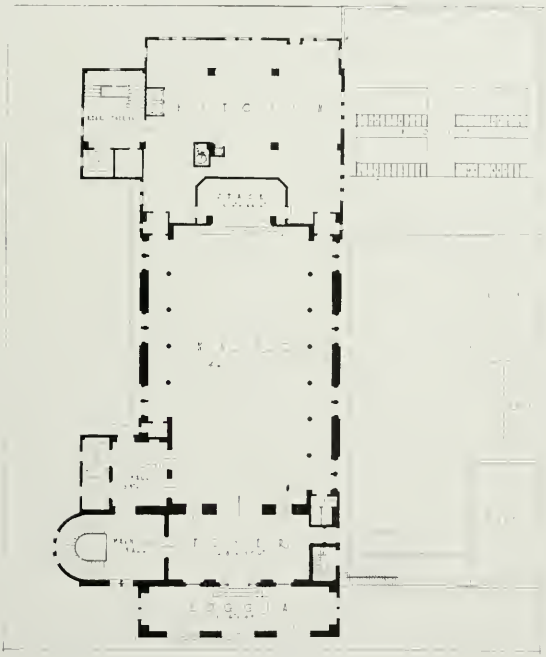


SECOND FLOOR PLAN, UNIVERSITY CLUB OF LOS ANGELES
Allison & Allison, Architects

the things before or around one are genuine, worthy and enduring; and while it probably derives to a large degree from felicity of proportion and sincerity in handling of materials, it is nevertheless independent of questions of architectonic merit strictly speaking; architecture which is well, even brilliantly, designed may lack it. In these interiors one feels this satisfaction. They are not voids; the atmosphere contained is as real as the walls and ceilings. No better object-lesson than these rooms could be asked of the oft-neglected truth that when the proportions and scale are right, ornament can readily be dispensed with. Architecture

could not be plainer, nor could it be warmer, more intimate, more homelike.

One cannot leave the University Club without special reference to the decoration, furniture, and decorative accessories. Each of the items involved, any one of which might have intruded a fatal false note, contributes its part to the general harmony. The color scheme is particularly gratifying—quiet, full, mellow. The decorative painting, confined principally to ceilings, is of fine character and quality. The furniture



THIRD FLOOR PLAN, UNIVERSITY CLUB OF LOS ANGELES
Allison & Allison, Architects

was all specially designed and made. It is an admirable application of the rational eclectic principle—spiritual rather than historical consistency. The same is true of the lighting fixtures. They are wrought iron, save for the large gold chandeliers of the dining room, and of uniformly high quality of design and workmanship. The symbolical stained glass inserts in the large windows are just the right accents, and even the marked-off cement floors are remarkably clever and beautiful in finish. It is interesting to know that all of this work is of local execution, for it indicates the highest grade of craftsmanship in the community.

VIEW FROM STREET, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIF.
ALLISON & ALLISON, ARCHITECTS E. L. MAYBERRY, ENGINEER

VIEW FROM STREET, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIF.
ALLISON & ALLISON, ARCHITECTS E. L. MAYBERRY, ENGINEER

MAIN ENTRANCE LOGGIA, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA
ALLISON & ALLISON, ARCHITECTS

MAIN ENTRANCE LOGGIA, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA ALLISON & ALLISON, ARCHITECTS

ENTRANCE TO WOMEN'S DINING ROOM, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA — ALLISON & ALLISON, ARCHITECTS

THIRD STORY LOGGIA (DINING ROOM), UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA ALLISON & ALLISON, ARCHITECTS

DETAIL OF GARDEN FACADE, UNIVERSITY CLUB OF LOS ANGELES,
LOS ANGELES, CALIFORNIA ALLISON & ALLISON, ARCHITECTS

DETAIL OF STREET FACADE, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA ALLISON & ALLISON, ARCHITECTS

GARAGE ENTRANCE, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA
ALLISON & ALLISON, ARCHITECTS

GARDEN LOGGIA, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA
ALLISON & ALLISON, ARCHITECTS

ENTRANCE LOBBY, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA ALLISON & ALLISON, ARCHITECTS

ENTRANCE LOBBY, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA
ALLISON & ALLISON, ARCHITECTS

ENTRANCE LOBBY, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA
ALLISON & ALLISON, ARCHITECTS

WOMEN'S DINING ROOM, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA
ALLISON & ALLISON, ARCHITECTS

LOUNGE ROOM, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA
ALLISON & ALLISON, ARCHITECTS

LOUNGE ROOM, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA
ALLISON & ALLISON, ARCHITECTS

LOUNGE ROOM, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA ALLISON & ALLISON, ARCHITECTS

LOUNGE ROOM, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA
ALLISON & ALLISON, ARCHITECTS

FIRE PLACE IN LOUNGE ROOM, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA ALLISON & ALLISON, ARCHITECTS

LOUNGE ROOM, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA
ALLISON & ALLISON, ARCHITECTS

WRITING ROOM, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA
ALLISON & ALLISON, ARCHITECTS

LIBRARY, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA ALLISON & ALLISON, ARCHITECTS

FIRE PLACE IN SILENCE ROOM, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA ALLISON & ALLISON, ARCHITECTS

SILENCE ROOM OFF LIBRARY, UNIVERSITY CLUB OF LOS ANGELES.
LOS ANGELES, CALIFORNIA ALLISON & ALLISON, ARCHITECTS

SECOND STORY STAIR AND ELEVATOR HALL, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA
ALLISON & ALLISON, ARCHITECTS

SECOND STORY STAIR AND ELEVATOR HALL, UNIVERSITY CLUB OF LOS ANGELES
LOS ANGELES, CALIFORNIA ALLISON & ALLISON, ARCHITECTS

ENTRANCE TO GAME ROOMS, SECOND STORY, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA
ALLISON & ALLISON, ARCHITECTS

GREAT HALL, ENTRANCE TO GAME ROOMS, SECOND STORY, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA ALLISON & ALLISON, ARCHITECTS

ENTRANCE TO GAME ROOMS, SECOND STORY, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA — ALLISON & ALLISON, ARCHITECTS

ENTRANCE TO GAME ROOMS, SECOND STORY, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA
ALLISON & ALLISON, ARCHITECTS

DINING ROOM, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA
ALLISON & ALLISON, ARCHITECTS

DINING ROOM, UNIVERSITY CLUB OF LOS ANGELES, LOS ANGELES, CALIFORNIA
ALLISON & ALLISON, ARCHITECTS

Lighting Fixtures of the University Club

By NORMAN D. BISHOP

As a complete description of the architectural features of the Club will be found on preceding pages, these few paragraphs will be confined to lighting fixtures and decorative illumination.

In planning a scheme for a building such as the University Club the use of various portions of the building must be carefully considered and a variety of ideas and materials produced to avoid monotony and also to conform with the architecture. In design, the fixtures range from 16th century to late 18th century Italian, and in materials from crude iron forgings to delicate silver, gold and crystal. The character of the work developed is in keeping with the architecture and decoration of the various rooms.

As decoration is dependent on lighting conditions for its proper effect, the best and most thoughtfully studied scheme may be nullified by improper placing of lighting fixtures. The quality and quantity of light, though important, is not the only consideration in the proper illumination of a building such as this Club, but the source of light must be so placed and designed to enrich and enhance the architectural features and at the same time form a part of the decorative furnishings.

At the main entrance, suspended from the domed ceiling of the vestibule, is a forged hexagonal lantern with rich panels of fine scroll work. From this vestibule extends the Loggia, cloister-like to the ladies' entrance, and at night the softly subdued light shining through old iron grilles suspended from the ceiling, casts fanciful shadows on the brick-paved floor, producing an atmosphere of romantic charm.

The main lobby, of generous proportions, is illuminated from four side wall brackets and floor standards, creating interesting highlights and shadows on the walls, and lofty, richly decorated ceiling. These fixtures are of finely forged iron, finished in color and texture as they left the hands of the smith. The wall brackets are long grilles behind which is draped crimson antique Italian velvet, the top scrolls enclosing old bronze seals of the Club, and from the bottom of the grilles projecting arms support slender candles, the direct light from the lamp bulbs softened through antique parchment shields.

Old sanctuary lamps in silver repousse are suspended from the vaulted ceilings at the stairs, elevators and the corridor to the banquet rooms.

The ladies' lounge and dining-room, a delightful apartment with more of the lightness of the late 18th Century Italian, is lighted from delicate, graceful chandeliers of tooled and repousse pewter and gold and flat "water green" antique glass disks below the tall, slender candles. The whole is enriched with a scintillating profusion of crystal.

The main dining room, on the third floor, probably the most used room of the Club, as it is also the ballroom, is illuminated from six large chandeliers, each with twenty-five candles, hanging from the high, richly colored coffered ceiling. These fixtures of heavy brass are antiqued to a golden russet tone, blending with the decorative scheme.

* * *

An Australian Architect's Impressions of America*

By S. H. BUCHANAN, Sydney

After visiting twenty American cities, the most noticeable assets today are contained in the service, science and sense displayed in the American architecture. I have been introduced to the last word in domestic architecture and to that steel frame modernity known as the skyscraper.

*Extracts of an interview in the Sydney, Australia, Architect.

The American architects have been to the European cities and availed themselves of the best architecture, and designed and adapted their findings to American architecture of the present time, and many architectural gems are to be found embodying strength, utility and beauty.

I received the utmost courtesy and kindness, and I was struck by the "Glad to know you" feeling that is extended, especially to Australians.

In many cases the American would say "I know some of the Australian soldiers and they have put Australia on the map and given it a clean name in America." The password "Australia" in many cases gave me access where otherwise I may have been refused admission.

I was impressed by the importance of architectural education as a civic obligation and as a duty to the community. The universities, libraries, museums, and art galleries, give splendid opportunities for the student to gain knowledge and study. Plaster and cork models of many of the famous Roman and Greek temples, arches and details, etc., are exhibited.

Many young men are found supervising and controlling large buildings under construction, also as hotel, department store, and picture theatre managers. Most of the large concerns are managed by a board of directors, and they are run for the public service and interest.

There is quite a building boom in America at present, and after interviewing the leading architects in New York, Chicago, San Francisco and Los Angeles, and inspecting plans of works in progress and future buildings, it is clear that the demand is for more accommodation in theatres, auditoriums, banks and office blocks.

Acoustics have been experimented with in America and excellent results obtained; also the new banks and office buildings are treated in such a manner as to subdue typewriting and other noises.

The motor car is making America today. The traction problem has been solved and distance is eliminated. The motor industry is a very far-reaching one, and no limit can be placed on the pleasure that the American people get from touring, camping, etc., by motor. They say "see America first" and the motor car carries out the idea. There are so many cars in the cities that it is quite a problem where to park them during business hours.

Most of the American roads are perfect, and on the west coast the motor stages handle most of the passenger traffic, and it is only a matter of time before the railways will handle only freight.

The snow-capped mountains and lakes of America are a wonderful asset and help considerably to give cheap lighting and power, water supplies, and cheap water transit.

The theatres, picture houses, banks and factories are equipped with ventilating, heating and cooling systems, giving an even temperature of 65 degrees all the time; machinery for these services being placed in the basement.

Architects' sample rooms are maintained by the merchants selling building materials, and give the architect and client an exhibition of the many new ideas and materials offered to embody in the future buildings.

The public services are catered to in every way in Los Angeles, California, for water, sewer, gas, electric light, hot water and refrigerator services are supplied through street mains.

DRAGON SCREEN, WINTER PALACE, PEKIN ABOUT 1690

Chinese Terra Cotta

By LOUIS CHRISTIAN MULLGARDT, Architect

THE following interesting account of terra cotta work in China is taken from a letter from Mr. Louis Christian Mullgardt to Mr. Athol McBean, of Gladding, McBean & Co., dated Peking, September 12, 1922:

Perhaps I am wrong in assuming that you have not seen or do not possess better photographs of Chinese terra cotta work than those which I took and of which I am sending you prints. In going about Japan, Korea and China, my keen interest in all forms and qualities of burnt clay products, glazed and unglazed, makes me think of you very frequently, and I have wished for your companionship many times when

DRAGON SCREEN, WINTER PALACE, PEKIN

there were admirable subjects of special interest for expert knowledge and discussion.

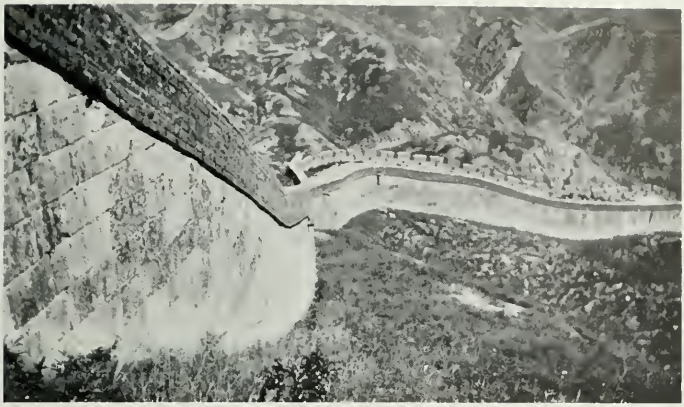
Japan, as you know, has a great deal of typical "pan tile" roofing: hips, ridges, ornamental terminations of hips and ridges and rosette terminations at the eaves, including a festoon motif between the rosettes. In the northern and central sections of Japan these products are uniformly gray, unglazed; in the southwestern portion of Japan there are many reddish, mixed shades, glazed tile roofs, resembling somewhat the more prevalent tones of your "Cordova tile," more brilliant, of course, due to the glazing.

In Korea, the roof tiles, etc., are similar to the Japanese gray. There is not a great deal of clay products in Korea—in fact, there is very little to be seen; it is limited to temples and structures forming parts of temple compounds, and to the imperial gates of the great walls surrounding important old cities like Seoul, which has five gates, of which two are of immense size. It is also interesting to note that the embattlements of the great walls are of gray brick, about 3′x7′x15″ in size.

GREAT WALL OF CHINA. GRAY BRICK, ABOUT 3 IN. x 7 IN. x 15 IN.
Steps in foreground in gray tile

China has many gray tile roofs, including the customary embellishments of gable or hip and ridgework, none of which is glazed. The Great Wall of China is 1500 miles long. All of its embattlements are of large gray brick, similar to those in the walls of Korea, the ends of each embattlement being laid with chamfered brick, including the portholes. The superstructures of the sentinel towers (which occur about every 600 feet) are built entirely of such brick, the walls being about 5 feet thick and the openings round arched. The substructures of these great walls

CITY WALL OF SEOUL, KOREA



THE GREAT WALL OF CHINA, NAN KOW PASS
Embattlement indicates side facing Mongolia

are of cut granite, cut to curvatures, grades and angles, so that every block is like a "special." These walls average about 18 feet in thickness (they are filled in, solid) and are from 20 to 50 feet high. They look somewhat like Chinese dragons basking in the sunlight. The Chinese wall was built 300 B. C. Much of it is in good shape. The bricks are in excellent condition, as are the granite ashlar blocks. In places the stone flagging has been destroyed, allowing the water into the fill, and the frost expansion to disintegrate the structural work.

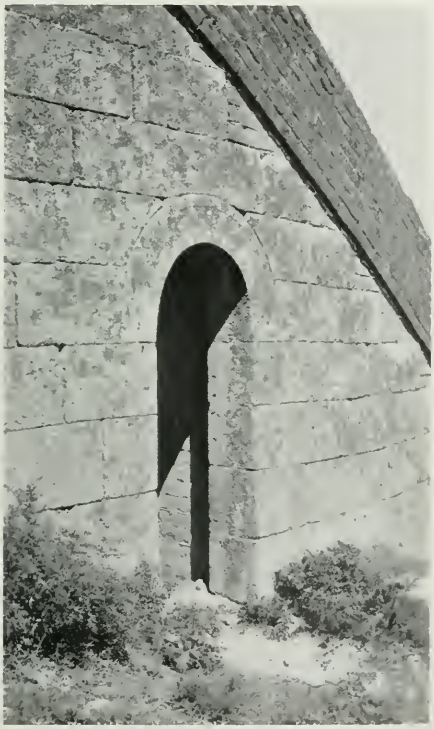
SACRIFICIAL ALTAR, TEMPLE OF HEAVEN, PEKIN
Brick and Glazed Terra Cotta. About 1650

The walls around the City of Peking, the Imperial City, and the inner enclosure are largely of gray brick, some of which have completely vanished; others, the majority, being in good state of preservation. These brick look as if they had been made of pressed cement. They do not suggest a burnt clay product. The Rockefeller Institute has been constructed entirely with old bricks which were taken from some old

SENTINEL TOWER, GREAT WALL OF CHINA, NEAR NAN KOW PASS, PATA LIN

Peking walls (which had to be taken down following the Boxer insurrection in 1900). These bricks were cleaned and look quite like the new ones which are seen about Peking today. They are perhaps 500 years old or more, as Peking was founded about 900 years ago. The roof tile of the Rockefeller Institute are of green glazed burnt clay—typically Chinese—including all ornamental terminations. I had a letter of introduction from Mr. Embree, secretary of the Rockefeller Foundation, to Dr. Houghton, who is in full charge of this institution. Consequently I have

had the opportunity to go over the entire plant with Dr. Houghton, and know from personal observation during one afternoon that they have a remarkable lot of structures, sympathetic in design with their surroundings and thoroughly modern as to interior equipment and design. China had ceased making glazed tile since the days of imperialism, or before, namely, about thirty years ago. It became necessary to reopen the old



OPENING TO STAIRS, GREAT WALL OF CHINA

plant where the imperial tile had been made so that the Rockefeller buildings might obtain them. This, of course, led to a great deal of trouble and anxiety, but the work was ultimately completed, including extras in anticipation of future requirements. Dr. Houghton took me to a distant yard that I might inspect some of the material which had not been set into place. All of this is green glazed terra cotta. The clay product I find to be pink yellows, not gray. The moulds are nicely finished. The walls must be about 1¾ inches thick.

Glazed tile roof and wall coverings were the Imperial thing to do in China. The roofs of the buildings within the Imperial City compound are largely of royal yellow. At a distance the glazing sparkles like a running sheet of rippling water reflecting sun rays. Some are green, some blue. Now that China has, among many other things, lost its imperialism, it has also lost its art for making glazed tile roofs and terra cotta. There are many railings of immense length at the Dowager

EXTERIOR WALL OF SHRINE, WINTER PALACE, PEKIN
Green Glazed Terra Cotta Tile

Empress' summer palace, built of enamelled blue and green and yellow brick (also at the Emperor's winter palace and elsewhere). There is a structure back of the pagoda, high up in the clouds almost, built almost entirely of glazed terra cotta, in colors, richly ornamented. It was impossible to get near it, hence I have no good photographs of it, but it was as beautiful as a jewel casket. The next finest structure is a terra cotta dragon screen in front of a temple compound, at the Emperor's winter palace. Of this you will find photographs enclosed. The waves

are green; the sky, light blue; the dragons, yellow, white, lavender, dark blue, and the architectural crowning, largely green. It is a beautiful color combination and very impressive. Its stylobate is of marble and terra cotta. It is perhaps ninety feet long, four feet six inches thick and sixteen feet high. It is the finest piece of terra cotta work that I have ever seen, except possibly the little temple back of the pagoda of the summer palace previously referred to.

DETAIL OF DRAGON SCREEN, WINTER PALACE, PEKIN
Ivory Terra Cotta, Blue Sky, Green Waves

There are imperial arch screens on four sides of the "Temple of Heaven," at the winter palace, whereon the pilasters, entablatures and all the intricate bolsters corbelling under the eaves have been executed in enameled terra cotta. It is apparent that glazed terra cotta work in China was completely controlled by the Imperial Government; that only common, gray, unglazed burnt clay products could be used by the commoner. Some of the finest work, namely, the dragon screen and the imperial arches to the Temple of Heaven at the winter palace, dates back

over 300 years. At present this marvelous industry, which China had cultivated to such a remarkable degree of perfection at such an early date, is absolutely dead. The Rockefeller Institute revived it only to the extent of having its roofs made of all green glaze, after a thirty-year shut down (to which it has again returned).

Japan and Korea display some modern signs of interest in glazed tile and glazed brick (aside from the terra cotta work which you are

CONFUCIUS ARCH, PEKIN
Top is Polychrome Terra Cotta

doing in Tokyo). A severe earthquake brought down tons of 3-inch by 6-inch facing enameled tile from the four facades of an eight-story structure last May.

It would perhaps be advisable to support terra cotta blocks entirely with backing and after removing the wood wedges point up with a back-set joint, one that is not too rigid, to avoid fractures in event of earthquakes or settlement. The joint fill not to exceed one inch in depth. Each block would accordingly be supported like a stud, and not be subject to excentric pressure when disturbances occur.

It is remarkable how straight and true these immense terra cotta blocks of old China are and how dense and hard the burnt clay product is. There is another place, at the north end of Peking, known as the Temple of Heaven, where a gorgeous blue glaze tile has been used on all roofs of many structures, also as wall coverings of great width (such walls as form the enclosures of separate compounds). There is also a

WINTER PALACE, PEKIN
Gables and Entire Roof Polychrome Terra Cotta

"Sacrificial Altar," built of brick and faced with green glazed tiles, about 14 inches square, where white animals were sacrificed to the great Buddha.

I have received many interesting surprises in my visit to China, of which their remarkable advancement in terra cotta work forms a very important item. It is perhaps unfortunate that the commoner was not permitted to make use of it, so that a more liberal introduction of pari-color work would have given the industry greater latitude.

WINNING DESIGN IN CHICAGO TRIBUNE COMPETITION
JOHN MEAD HOWELLS ARCHITECT

The Chicago Tribune Competition

By F. W. FITZPATRICK

THE great Chicago Tribune Competition on the whole was a success, and will go down in history as the most talked of, highest prized and most popular competition of our day. Some sixteen hundred or more architects signified their intention of going into it, but the later realization that the drawings would cost a thousand or two switched off many aspirants, so that only a hundred and eighty odd actually submitted plans.

The rules were stiff, definite and absolute. Infraction meant being barred, and probably had the full 1600 competed those rules would have been rigidly enforced. As it was, considerable latitude was shown, to the disadvantage, of course, of those who adhered strictly to those rules; the prize drawings were mostly in sepia, on a background and with certain pictorial frills, whilst the letter of the law was an unadorned presentation of the building in black lines and washes without sky, tree or other accessory.

It was essentially a layman-jury that passed judgment instead of the usual committee of well-known and successful architects. The architectural editor of the Tribune and Mr. Alfred Granger, a Chicago architect, were the only professional advisors, the other members were the owners of the Tribune and a number of prominent citizens, heads of civic societies, and such—not what might be called a technically well-equipped jury, despite its high standing morally and socially. They gave an honest verdict. There was not a breath of scandal or a hint at a cooked-up affair as so often accompany competitions. The management of the whole thing was dignified, fair, a model of propriety, and most commendable. It will undoubtedly help the cause of better building and raise the standard of practice a bit. And we need raising.

The first prize ($50,000 and the commission to build) was awarded to John Mead Howells, of New York. The second prize ($20,000) was awarded to Eliel Saarinen, of Helsingfors, Finland. The third prize ($10,000) was awarded to Holabird and Roche, of Chicago.

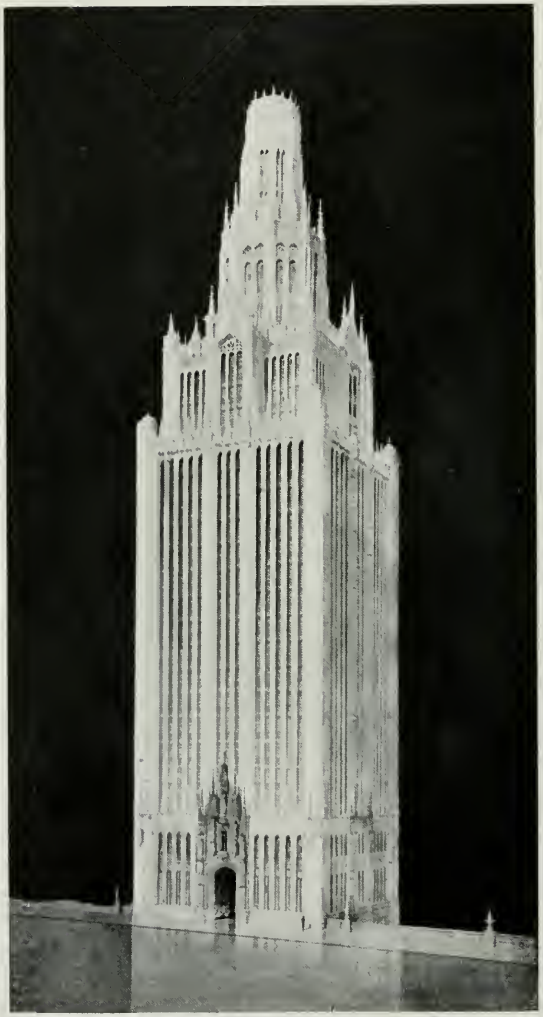
Ten architects were invited and paid $2000 each to assure the Tribune a certain number and standard of competitors, in case the profession or field had not responded. Of these, only one got a prize, the Holabird and Roche design.

Chicago's offering was disappointing, not one really masterly solution of the Tribune's problem, and in most part very, very medium affairs, with a preponderance of freak and impressively ugly ones. For the home, the birthplace of the skyscraper, it surely did not cover itself with glory.

New York's offering was dignified and much superior to Chicago's

Some of the European designs were commendable; the second prize was certainly an original conception, the work of a genius, and the drawings were marvels of the draftsman's art, etchings most wonderfully rendered. Indeed, most of the architects who visited the exhibit were of the opinion that it had superior merit, and deserved first place instead of second; certainly it was more original than the first prize.

Most of the other foreign offerings were a revelation to us as to what a European thought our skyscraper should or could be; indeed, I never saw under one roof so many horrors, freaks and monstrosities. As a courtesy, one in each country was given an honorable mention. One glance at them, however, would make an American architect glad he had not been put in that class and "mentioned."



AWARDED HONORABLE MENTION IN CHICAGO TRIBUNE COMPETITION MACDONALD & COUCHOT, ARCHITECTS

All three of the prize designs show an unmistakable leaning toward Gothic, and that that is the coming influence is further shown by the fact that it is the preponderant theme in most of the designs submitted.

We are faddists and change our styles as the ladies do and almost as frequently and with as little reason or logic. When I was a young man Richardson was the vogue, and his Pittsburgh Court House and Boston Church were the "copy book forms" set before us. We all did Spanish and Hibernian and Hebrew and Gentile Romanesque. I think I perpetrated over forty Romanesque court houses, and I have counted two hundred of Richardsonian influence. Then Attwood gave us the beautiful Arts Building at the Chicago Fair, and for many a year our churches, institutions, banks, cowsheds, libraries and dog-kennels had to be becolumned Greek temples. Even today no properly constituted bank can do business except it be behind a great array of fluted columns and massive entablatures. Later Cass Gilbert made a stunning thing of the Woolworth Tower, Gothic and gaily colored, and later the War gave us pictures galore of the Hun mistreatment of Belgian and French Gothic treasures, our young men saw those old towers and mossy Gothic beauties, and like the speckled rods of old and Jacob's ewes it all had its influence, and today our tall buildings must be Gothic. It is essentially ecclesiastical, albeit the Tribune calls its tower "military" Gothic.

I cannot quite see the reason for housing a newspaper in either an ecclesiastical or military habitat save the fact that the Tribune is somewhat militant and does a lot of guiding of public morals and all that, which may be an intrusion into the realms of ecclesiasticism that justifies priestly garbing. Howsomever, it is going to have a fine old cathedral tower, all properly pinnacled, flying buttressed and crocketted—a handsome building withal, so here's success to the Tribune and its selected architect!

Some of the others carried the medieval church feeling to excess. The third prize and a lot of others indulged in rose windows, traceried windows, narrow doorways, niched apostles and bishops, and all. One expected a holy-water font at the entrance and to see ye editors robed in chasuble and stole!

One competitor surmounted his composition with a huge Sphinx and another with a ragged newsboy poised upon one foot a la Mercury.

One cannot help but wonder at the architects and competition. The latter certainly takes the former out of the realm of business or professional professions and makes them chase commissions as artists do. Could the lawyers be beguiled into preparing briefs and pleadings and such for a case in competition, or the doctors to practice on a patient and try out their theories in competition, the best one to be paid for his work by the victim or his heirs? Or would a lot of tailors each make a suit of clothes for one who merely averred that he would pick out and pay for the suit he liked best?

One consolation the unsuccessful competitors may hug to their hearts is that an architectural competition is merely a gamble, and no particular discredit to the unsuccessful. A horse race, or boat race, or a prize fight (barring "accident") generally means that the best wins. There is a tangible, apparent and unquestionably best, judged by certain fixed and logical rules, whereas in our competitions it is a matter merely of personal taste, prejudice, digestion even. These gentlemen who awarded the prizes for the Tribune picked out those three designs last week. They did it honestly and squarely. The same men viewing the same designs two weeks from now, might select something entirely dif-

ferent. Or another bunch of equally intelligent laymen might not have given a second look at the prize designs by the first group. This architectural advisor may have been prejudiced by training and taste toward the Gothic style—(I think he was and is); another might have been a classical enthusiast and thrown his vote to the chap who showed a very pure Greek temple perched atop a twenty-storied office building base. Who knows? It is just like a jury trial; one never can tell which way that jury is going to jump.

So it goes. Our noble profession has expended a couple of hundred thousand hard-earned dollars in another competitive gamble. One of us thinks it was just all right and as it should be, two others of us are sure the jury made a slight mistake, and the rest of us are ready to aver that all competitions are a delusion and a snare and we shall never go into another—until the next. "Fortes fortuna juvat," or should we say in this case, "Quae nocent, docent"!

The ten representative American architects whose response to the invitation to participate in the competition won them an honorarium of $2000 each are:

Bliss & Faville, San Francisco.
Holabird & Roche, Chicago.
Jarvis Hunt, Chicago.
Schmidt, Garden & Martin, Chicago.
D. H. Burnham & Co., Chicago.
Andrew Rebori, Chicago.
John Mead Howells and Raymond M. Hood, New York.
Bertram G. Goodhue, New York.
Benjamin W. Morris, New York.
James Gamble Rogers, New York.

Designs which received honorable mention—some for apparent merit but most of them as a compliment to foreign nations whose representatives competed—were submitted by:

MacDonald & Couchot, San Francisco.
Ernesto Fuchs, Guadalajara, Mexico.
Thomas J. George, New York City.
Guy Lowell, Boston.
Hewitt & Brown, Minneapolis.
Schmidt, Garden & Martin, Chicago.
Edmund S. Campbell, Chicago.
George F. Schreiber, Chicago.
Richard Yoshijiro Mine, Urbana, Ill.
A. N. Rebori, Chicago.
Louis Bourgeois, Francis E. Dunlap and Chas. L. Morgan, Chicago, Ill.
Benjamin Wistar Morris, New York City.
Alfred Morton Githens, New York City.
F. Lilpop and K. Jankowski, Warsaw, Poland.
Hugh G. Jones, Montreal, Can.
Charles H. Bebb and Carl F. Gould, Seattle.
Felix Cabarrocas, Havana, Cuba.
Jos. Schartz, Grand Duchy of Luxembourg.
Otto Hoffmann, Vienna, Austria.
Friedr. Stühmke, Berlin, Germany.
Nicholas Wassilieff, Belgrade, Serbia.
W. Th. Gregory and B. R. Saunders, London, England.
Hutton & Taylor, Glasgow, Scotland.

Jules Vanden Hende, Ghent, Belgium.
Barry Hammond Dierks, Paris, France.
Meischke & Schmidt, Rotterdam, Holland.
Pierre Le Bourgeois, Nancy, France.
Giuseppe Boni, Rome, Italy.
Olaf Boye, Crawfurd Jensen, and L. W. Wilhelmsen, Christiania, Norway.
L. Bode, Amsterdam, Holland.
Hermann Herter, Zurich, Switzerland.
A. Hamilton Scott and John A. W. Grant, Edinburgh, Scotland.
Lechner, Jeno, Budapest, Hungary.
Lechner Lorand and Kantzky Tivadar, Budapest.
Lippincott & Billson, Melbourne, Australia.
In all, twenty-two nations were represented in the competition.

* * *

The Building Outlook for 1923

By ROGER W. BABSON

NEW building is the outstanding feature of our business recovery. It is what started us on the road to better business. Never before in the history of the country have so many new houses been built as in 1922. For every house that was built in 1921 two were built in 1922.

This building revival is not confined to houses either. Home building has been the most spectacular, but we have also built many more offices, factories, schools, hospitals, churches, amusement halls, public roads, bridges, reservoirs, memorials, in fact, all kinds of construction. Whereas our normal building total is about $3,000,000,000, the 1922 record reached an approximate total of $5,000,000,000.

The outlook is encouraging for continued building activity, both in residential and business building for the greater part of 1923. Beyond that time we may look for a decline. A survey by the National Association of Real Estate Boards shows that out of a total of 184 cities scattered over the country 121 cities still report a housing shortage, 53 report no shortage, and only 10 a moderate shortage.

High rents have probably passed their peak. The long swing will be downward. Here again it is a question of supply and demand. The coming decline in rents will not be abrupt, at least, not until this building boom has supplied more of the shortage. Rental advances for the present are slightly more numerous than declines, but in the majority of cities there is no movement either up or down. Gradually, of course, the trend will turn downward as the demand is more fully supplied. Industrial and business rents show surprising stiffness due to business recovery, but these do not indicate any long continued advance.

If we are to have continued building activity, prices of building materials must be kept down, at least near present levels, or the people will stop building, just as they did in 1920. In fact, I do not think we will see quite so much building this year unless there is some reduction in costs. During the next few months material prices should show some seasonal weakness. But as sure as the material dealers start in to boost prices next summer they will choke off their business.

The same warning applies to labor. Wages are already as high as they can be and still allow much building. Both labor and material men should realize that it is better for them to have steady building at moderate profits than it is to have a short spurt of building at high profits followed by a long period of idleness.

Proper Lighting Fixtures

Some Notes by an Illuminating Engineer

LUXURIES of a few years ago have become necessary equipment in the well-planned home of today. The modern home, no matter how small or how modest it may be, is now equipped with many up-to-date features that make it a better place to live in.

Scientific housekeeping is made possible by the use of well-known labor-saving devices, which have been developed so rapidly in the past few years that they have not only come within the reach of every home of moderate means, but have actually reduced operating expenses.

One of the most important points to consider, in planning the successful home, is adequate electric wiring, with a sufficient number of properly placed outlets. Good lighting means more than illumination without the aid of a match—carefully selected and well-placed lamps and fixtures make the home more attractive and add greatly to its comfort. Properly located switches eliminate searching in the dark for lights, and a number of extra outlets placed in baseboards and at switch-heights in the walls permits the use of labor-saving appliances without loss of time or disturbing the lighting arrangement.

The lighting of a home is highly important. You want to have healthful light that will protect your eyes from weariness and strain. You want useful light that will enable you to do easily the things you wish to do at night. You want enjoyable light that will make your home attractive and appealing. You want the kind of light that fits the kind of house you live in and expresses your taste and personality.

It is not enough to have just raw light. You want light that is controlled and directed; in other words, you want illumination. For ages men have just spilled light around. The open flame lamp of the ancients, the candle, the kerosene lamp, the gas jet, and even the early type of electric incondescent lamp, really spilled out raw light as you might spill water out of a pipe upon the lawn. But a few years ago we realized how wasteful and inefficient this was and began experimenting with raw light to see if it could not be sprayed instead of spilled. A spraying nozzle on a hose spreads water without waste, wherever wanted. Just so the science of illumination has learned how to spray light by the use of shades and reflectors that gather in the light rays and then re-direct them to the spot where they are wanted. This has resulted in great saving of light and much more comfort and practical benefit.

The most comfortable illumination is obtained when the light is well diffused, that is, sprayed over the room so that there are no sharp shadows. The most light should be thrown on the objects that are most used—the writing table and the easy chair where one reads. From these points it should soften gradually as you look away, and there should be no direct light from any lamp shining into the eyes. As a health measure alone, good lighting is vital to every home.

The first step toward conversion of raw light into illumination came when the incandescent gas mantle gave a light so brilliant and glaring that it had to be shaded. As larger and more intensely brilliant electric lamps were developed, enclosing glassware came to be universally used. But the light was still largely spilled through and out of them. A really scientific and efficient control of light was later obtained by the use of reflectors that not only reduce the glare, but also re-direct the light to definite points, that is, spray it where it is wanted. The result is light on the object, not in the eye.

THREE KINDS OF DIRECT REFLECTORS

Reflectors, whether they be glass or metal, are of three types, direct, indirect, and semi-indirect.

Direct reflectors throw the light of the lamp directly down upon the working plane. They are made in various shapes: shallow bowls that distribute the light over a broad area, deep bowls that focus the light directly underneath, and intermediate types that give a strongly concentrated light over a moderate area. There are also angle-reflectors that throw the light out to one side, and other special types for special purposes.

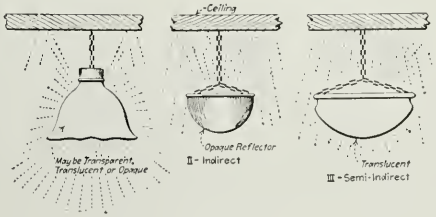
Indirect reflectors—usually of metal, glass or marble—throw the light up to the ceiling, where in turn it is reflected back into the room.

Semi-indirect reflectors combine direct and indirect illumination by allowing some of the light to filter through the bowl and by casting the rest upon the ceiling.

Just as in indirect illumination the ceiling reflects the light thrown upon it, so the walls, decorations and furnishings also reflect light. If they are light in color, they reflect most of the light that falls upon them; if they are dark in color, they absorb more light than they reflect. The following is a table showing the reflecting value of wallpaper:

Color of Paper	Per Cent Reflection	Per Cent Absorption
White	80	20
Chrome Yellow	62	38
Yellow	40	60
Light Pink	36	64
Blue	25	75
Dark Brown	13	87
Vermilion	12	88
Blue Green	12	88
Cobalt	12	88
Glossy Black	5	95
Deep Chocolate	4	96
Black Cloth	1	99

In the same way colored shades affect illumination. Oftentimes a dark tinted enclosing globe is most artistic and harmonious, but these effects are purchased at a considerable cost in light. This table shows the degrees of this influence:



DIRECT, INDIRECT, AND SEMI-INDIRECT REFLECTORS

Material of Globes	Absorption Per Cent
Clear Glass Globes	5 to 12
Light Sand Blasted Globes	10 to 20
Alabaster Globes	10 to 20
Canary-Colored Globes	15 to 20
Light Blue Alabaster Globes	15 to 25
Heavy Blue Alabaster Globes	15 to 30
Ribbed Glass Globes	15 to 30
Opaline Glass Globes	15 to 40
Ground Glass Globes	20 to 40
Medium Opalescent Globes	25 to 40
Heavy Opalescent Globes	30 to 60
Flame Glass Globes	30 to 60
Signal Green Globes	65 to 75
Ruby Glass Globes	65 to 75
Cobalt Blue Globes	65 to 75

The following summary for the proper placing of lighting fixtures will be found of value:

Living Room Lights—A liberal number of bracket lights placed 5′ 6″ above the floor with parchment shields or silk shades to cut the glare of the lamps will give a comfortable soft light. As an added decorative scheme floor and table lamps may be used from baseboard convenience outlets if the shades are properly designed to eliminate glare. These portable lamps also provide suitable light for reading. 25-watt spherical frosted lamps are best suited for this purpose. A center ceiling fixture usually makes a good daytime ornament, but it is a poor way to obtain good soft, comfortable, well-distributed light.

Dining Room Light—This should be a center ceiling light, well designed as a pleasing ornament and one that will give plenty of light on the dining table, the center of attention. A semi-indirect fixture with large size lamp or candle type fixture with about 5-25-watt spherical frosted lamps without shades makes a good dining-room light. If walls are rather bare a pair of ornamental bracket lights may be placed over buffet, which will call attention to silver service or fruits on buffet. These should harmonize with center fixture and be not larger than 25-watt lamps.

Bedroom Lights—These should be bracket lights. Not less than three for average size bedroom. (5′ 6″ above floor.) A center ceiling light serves only for general illumination. A person standing at the dresser or reading in bed works in his own shadow or faces glaring light when trying to read. Bracket lights give just as much general illumination and properly serve at the dresser and alongside the head of the bed. Use 25-watt spherical frosted lamps without shades.

Clothes Closet Light—One of the most convenient lights in the home. Cheaper than window in closet and serves at night when closet is most used. Should be located just above door with pull chain socket and never on ceiling or on wall where clothing might be hung on it.

Bathroom Light—This should be a bracket light located just above medicine closet mirror. (Never in ceiling.) A bracket light gives all the general illumination necessary and serves for shaving, etc.

Kitchen Lights—One in center of ceiling for general illumination and one bracket over sink (6′ above floor), both on same switch. 75-watt lamp in ceiling and 25-watt lamp over sink (the workbench of the home).

* * *

Will Try to Increase Number of Electrified Homes

The advisory committee of the California Electrical Co-operative Campaign will double its efforts this year toward electrification of the home. Data furnished by the State Housing Commission was shown to indicate a present building record of 30,000 new homes in California for the year 1923. The campaign will be directed toward the building of ten model electrical homes situated in strategic cities of California and efforts will be made to reach one-tenth of the entire population of the State, particularly that portion interested in home building.

The House Without a Chimney

THe house without a chimney is here. Since the days of Columbus, when the log cabin represented the best this country could contribute to architecture, the chimney has been a neecssary part of man's domicile. With the advancement of civilization the rough-hued cabin developed into the modest Colonial house and in time other types of architecture were introduced—homes large and small—but always with a chimney or two. Some short, some tall, others wide and still others narrow, many of them ugly and an eye-sore to the sky line—but withal a dire necessity.

Five years ago if a client said, "Build me a house, but leave off the chimneys," the architect would probably class him as mentally unbalanced, and completely ignore his instructions. That we are living in an age of progress one need but call to mind the development of the automobile, the airship, the radiograph and a dozen other inventions that were little more than dreamed of a quater of a century ago.

And now comes the chimneyless house—made possible by the substitution of electrical heat for coal, wood and gas. Up in the Los Gatos foothills in Santa Clara county there is being built for Mr. William Anderson (there is no relationship claimed with Hans Christian Anderson, although Mr. William Anderson's plans, destined to be realized, are quite as fanciful as some of the fairy stories which have made his namesake famous) an electrically equipped bungalow—without a chimney, without a coal stove, without a fireplace, yet a home that for comfort and convenience will have no superior. Mr. Charles McKenzie of San Jose is the architect. He has designed a house in the mission type with bell towers as two dominating features. The towers are a replica of an old mission house in Southern California, photographed by Mr. and Mrs. Anderson while touring last summer. The house will be one-story —no basement, with flat roof and tile cornice.

There will be no hardwood floors because the owner wants a house of comfort with as little work to do as possible. Mrs. Anderson says if she carpets all the rooms she can keep them clean easily with an electric vacuum sweeper. There will be no gas in the house because Mr. Anderson is of the opinion that gas heat creates a salty atmosphere that leaves the walls and furniture damp and dirty from the moisture. Asked what he would do for light if the electric power should go off through some unforeseen accident, Mr. Anderson remarked that there is a hotel close at hand and he and his wife (they are to be the sole occupants of the house) could go there in an emergency. Outlets will be provided for an electric heating stove in every room, as well as electric lighting, while the dining-room will have special attachments for the table, such as percolator, griddle iron and toaster. In the kitchen there will be a large electric range and an electric hot-water heater. The laundry will be equipped with an electric washer, dryer and ironing board.

F. W. J.

* * *

For the assistance of architects and builders who may have occasion to design an electrically equipped house, the following specifications have been prepared, covering all necessary requirements for wiring a one or two-story residence:

General. The object of these specifications is to include all that is necessary for a complete wiring system from the local power company's service to each and every outlet throughout the building, including main service switch, feeders, distributing

AN ELECTRICAL WIRING PLAN FOR A MODERN HOME

SHOWING THE PROPER WIRING FOR ILLUMINATION AND ADEQUATE CONVENIENCE OUTLETS ESSENTIAL FOR THE EFFICIENT USE OF LABOR-SAVING APPLIANCES.

CONVENIENCE OUTLETS

PORCH (Size 9' 6" x 11')
1—Outlet for ironing machine motor—up 8'
2—Bell ringing transformer
3—Cut-out and fuse cabinet
4—Outlet for washing machine—up 3'
5—Outlet for refrigerator motor—up 6'
6—Outlet for electric flatiron—up 3' 6"
7—Outlet for ironing machine heater—up 3'
8—Switch for garage light

KITCHEN (Size 9' x 11' 6")
1—Outlet for water heater—up 18"
2—Outlet for utility motor
3—Bracket light over sink
4—Outlet and switch for dishwasher
5—Front door bell
6—Back door buzzer
7—Switch for range—up 4'
8—Range outlet—up 30"

BREAKFAST ROOM
1—Outlet for heater
2—Outlet for toaster, percolator, etc.

BEDROOM (rear)
1—Outlet for dresser lights
2—Outlet for heater, sewing machine, or vacuum cleaner
3—Outlet for reading lamp
4—Outlet for warming pad or milk warmer

BATH
1—Bracket light over mirror
2—Outlet for vibrator, curling iron, hair dryer, or shaving mirror—up 4'
3—Outlet for heater—at base

BEDROOM (front)
1—Outlet for heater or vacuum cleaner
2—Outlet for curling iron
3—Outlet for warming pad or milk warmer
4—Outlet for reading lamp
5—Telephone outlet—up 12"

HALL
1—All night light

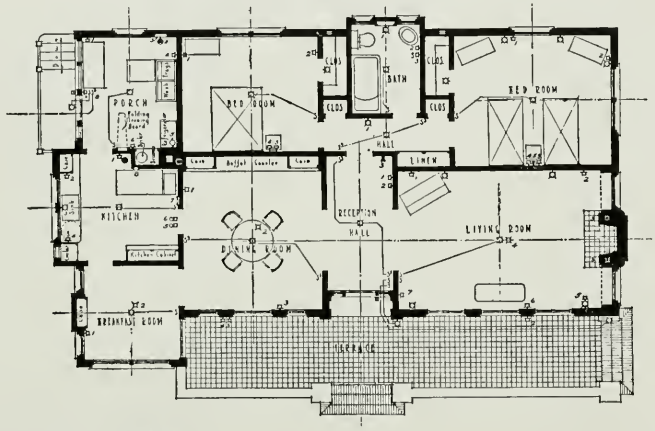
RECEPTION HALL
1—Outlet for vacuum cleaner
2—Outlet for portable lamp
3—Telephone outlet—up 12"

DINING ROOM
1—Outlet for stand lamp
2—Floor outlet for toaster, percolator, etc.
3—Outlet for heater

LIVING ROOM
1—Outlet for piano lamp or phonograph
2—Outlet for stand lamp
3—Outlet for lights on mantel
4—Floor outlet for table lamp
5—Outlet for heater
6—Outlet for table lamp
7—Outlet for vacuum cleaner

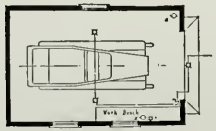
TERRACE
1—Outlet for illuminated house number
2—Outlet for portable lamp
3—Outlet for toaster, percolator, etc.
4—Outlet for lamp or sewing machine

GARAGE
1—Outlet for portable light
2—Outlet for bench motor, etc.
3—Outlet for air compressor



ILLUMINATION

—Ceiling outlet
—Bracket outlet
3 —Single-pole switch
3 —3-way switch



BETTER SERVICE TO THE PUBLIC

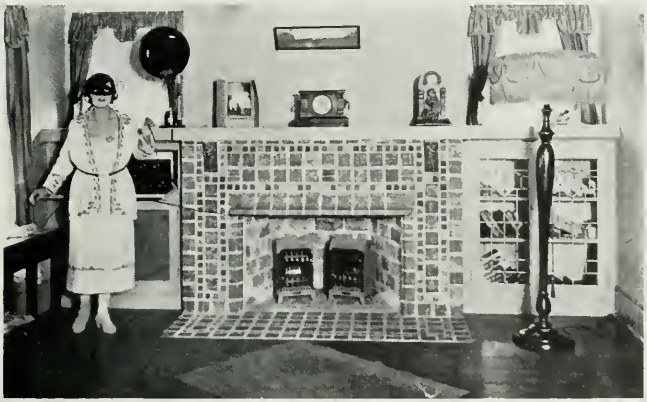
panels, cutouts, fuses, circuit wiring, convenience outlets, local switches, bells and bell wiring, etc.

All of the above shall be done in accordance with these specifications and plans accompanying them, and in a manner satisfactory to the architect, and all material shall be of the highest standard quality.

The work shall conform to the rules of the "National Electric Code" and the local ordinance governing electrical installations. All necessary certificates shall be obtained by the electrical contractor at his expense and delivered to the architect before work is accepted.

Main Service Conduit. A one and one-quarter inch (1¼") galvanized iron main service conduit with suitable 3-wire weather drip fitting shall be installed from the meter location to a convenient point on the outside of the building for the power company to make connection.

Electric Range Conduit. Install a 1¼" iron conduit from meter location to location of range in kitchen and terminate in a 4⅛" metal outlet box equipped with 3" plaster ring with tapped ears, set 28" above kitchen floor, and cover with blank metal cover. (This conduit to accommodate 3 No. 6 wires when required.)



LIVING ROOM, FRESNO APARTMENT HOUSE
Note Electric Heaters and Broadcasting Radio Set

Outlet Boxes. At each and every switch, wall, ceiling, convenience outlet or other outlet shown on plans, install a metal outlet box of a style most suitable for the purpose of the outlet. All outlet boxes must be rigidly secured in place by approved methods and those intended for fixtures shall be provided with a fixture stud.

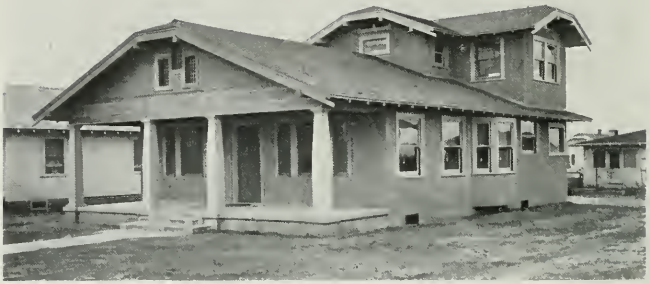
Heater Outlet. Each heater outlet (exceeding 660 watts) shall be wired on a separate circuit of not smaller than No. 12 B. & S. gauge wire and portected by a separate cutout. Twenty ampere concealed contact flush receptacles shall be installed on circuits intended for portable heaters.

Convenience Outlets. The branch circuit wiring for all convenience outlets shall be independent of the lighting circuits, and shall consist of No. 12 B. & S. gauge wire with not more than eight single or four double outlets on any one circuit, and shall be arranged so that if the consumer desires a separate, or "power rate," meter can be installed on this circuit. All convenience outlets placed on this circuit shall be the "Standard" concealed contact type, together with brass beveled edge cover plates.

Outlet Heights. Unless otherwise indicated or directed, convenience outlets shall be located in baseboard; wall bracket outlets, 5 feet 6 inches above finished floor; wall switches, 4 feet above finished floor, to center of outlet.

Switches. Local wall switches shall be approved flush type with brass beveled edge cover plate.

The brass cover plate for all convenience outlets and switches shall be finished to match other hardware in same room, or as directed by the architect.



ELECTRICALLY EQUIPPED BUNGALOW, FRESNO
Note Absence of Chimney

ELECTRICALLY EQUIPPED APARTMENT HOUSE, FRESNO
Nels N. Nelsen, Designer and Builder

"Electric" Dwellings in Fresno

Complete electrically equipped homes and apartment houses have not yet been built in any considerable numbers in California, but those that have been constructed have met with universal favor. Mr. Nels N. Nelsen, designer and builder of Fresno, built a complete electrically equipped home as an experiment. It proved so popular that Mr. Nelsen is now building nothing but electrically equipped homes and apartments. Mr. Nelsen's idea of an electrical home means complete electrification, with convenient outlets for every household necessity and labor-saving devices, including ironing and washing machines, dishwashers, vacuum cleaners, radiators, water heaters, etc.

Examples of some of the houses recently built by Mr. Nelsen in and near Fresno are shown in this number. Two apartment houses have been completed and a third is under construction. These houses have many features in addition to the regular equipment, including an electric ice refrigerator and electric fans. The electric range is built in the wall. The roof has a hardwood floor for dancing, and a complete radio set with Magnavox attachment. There is also a large broadcasting station for sending and receiving messages over a long range.

PORCH OF FRESNO APARTMENT HOUSE
Electrical Equipment includes Washing Machine and Ironer

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Published Monthly in the Interest of the Architects, Structural Engineers, Contractors and the Allied Trades of the Pacific Coast by The Architect and Engineer, Inc.

PUBLICATION OFFICE:
627-629 Foxcroft Building, San Francisco
Telephone Douglas 1828

The publishers disclaim any responsibility for statements made in the advertisements of this magazine.

Terms of Subscription
(Including postage) to all parts of the United States, $2.50 per annum; to Canada 75c additional; to all Foreign points $1 additional

Vol. LXXII. JANUARY, 1923 No. 1

SPREAD OF THE ELECTRICAL HOME

Twelve electrical homes have been built and exhibited in the West in the past year, comments the Journal of Electricity. One hundred and sixteen thousand people visited the seven homes, located in Seattle, Oakland, Alhambra, Stockton, Calexico, and Vancouver, B. C. It is estimated that another hundred thousand visited the five other homes at Denver, Salt Lake City, Boulder, Spokane and Tacoma, erected during the year.

The spread of the electrical home idea is evidence that no other form of advertising produces results comparable with those accruing from the staging of a successful exhibition of this kind.

The public is becoming sold on the advisability of having its homes adequately wired to make full use of electrical servants and of the benefits of correct illumination. Architects, builders and real estate men are capitalizing on the advantages of completely wiring homes and apartments; in fact, several builders are erecting nothing but "electrical homes."

EGOTISM AND GOOD ARCHITECTURE

It is a lamentable but nevertheless recognized fact that some of our most successful architects are prone to egotism.

But it is not always the architect who is thus afflicted with this failing. Owners are not immune. No doubt the whims and personal likes and dislikes of clients have much to do with the success and failure of an architect. There is a story about a wealthy mining man who acquired his fortune quickly and without much mental exertion, and he decided to do something substantial for the community in which he lived. His dream took form in the shape of a fine opera house costing several hundred thousand dollars.

The millionaire miner employed a good architect to design the theatre and when the building was nearing completion, the proud owner, walking through it on a tour of inspection with the architect, noticed a bust on one side of the proscenium arch.

"Who is that?" asked the owner in a surprised tone.

"That is a bust of Shakespeare," replied the architect.

"What in H—— did he ever do for this city?" exclaimed the owner indignantly.

"I can't say that he ever did anything for this city, sir," ventured the architect, "but——"

"Well then take it down and put my picture in its place," commanded the owner.

Which goes to emphasize our point that less egotism with the

profession as well as with the layman will contribte for better architecture.

THE INDIFFERENCE OF ENGINEERS

The recent convention of the Bar Association held in San Francisco was marked with enthusiasm and the actions of this body undoubtedly will have a tremendous influence before the lawmaking government bodies of the world.

Judges and lawyers of international fame were represented at this gathering. What about the engineer? The indifference of engineers, their inactivity in supporting the various engineering organizations and their inability to lend themselves to progressive measures for the public good is something appalling. Who would advocate the calling of a convention of engineers where the same spirit of enthusiasm would prevail, and its membership to include the world's greatest engineers? asks the editor of Pacific Engineer. Under the present mental status of the engineer there could be no such thing as the recent Bar convention, this paper declares.

Why this spirit of indifference?

Quite recently the chief engineer of a large concern made the statement that he joined a certain engineering organization just to help one of its members and that he had no time to take an active part in any engineering society.

Not so long ago a consulting engineer, in volunteering to furnish an article for publication, stated that his desire was based on wanting to help, but so far as he was concerned he did not care to be helped. He later set forth that most engineering bodies are inactive and their members placed no particular importance in the activities of the local society sections.

Engineering is a profession requiring special training and education. All recognized colleges specify a year or two longer to qualify as an engineer than is the case in the legal profession.

The value of an organization or an association for its service in the interests of public good and the welfare of its members is demonstrated in the fine activities of the Bar Association. Before the engineer can exact the same place in the public eye he must follow the example set by the legal profession.

SUCCESSFUL ARCHITECTURAL COMPETITION

It is not often that an architectural competition is held along lines so universally satisfactory as that recently conducted for a twelve-story office building and arcade to be erected in Los Angeles for Mr. A. C. Blumenthal and associates. Six architects were invited to compete, and each architect was paid $250 for his work regardless of whether he was awarded the winning design. This monetary consideration, though small, proved a stimulus to the competitor, who, in most competitions, must go to a considerable expense without hope of remuneration, unless he is so fortunate as to win a prize.

In the case of the recent Chicago Tribune competition, it is estimated that it cost each of the several hundred competitors from $1500 to $2000. This alone represents a small fortune invested by the profession without any possibility of reimbursement.

The Los Angeles competition was conducted according to a program approved by the American Institute of Architects. Mr. Sylvain Schnaittacher acted as professional adviser and the jury was composed of Architects Arthur Brown, Jr., and Lewis P. Hobart, Mr. Allen MacDonald, Mr. Felix Kahn, Mr. A. C. Blumenthal, Mr. Laz Lansburgh, and Mr. E. L. Bowes. The first prize was awarded to Messrs. MacDonald & Couchot of San Francisco. The other competitors were Messrs. Weeks & Day, G. Albert

Lansburgh, and S. Heiman, of San Francisco, and Curlett & Beelman and Swasey & McAfee, of Los Angeles.

The plans of all six competitors will be shown in detail in the Architect and Engineer for February.

Los Angeles Building Forecast

Nineteen twenty-three will be another great construction year for Los Angeles. Building projects already in sight aggregate in value more than the total for all building construction in 1920, which was a trifle over $60,000,000. That was a new high mark, but it was eclipsed by 1921, with a record of approximately $82,700,000. and 1922 reached the phenomenal total of $120,000,000.

Following is a summary of some of the more important building projects planned for 1923:

Office building and arcade, 12 stories and basement, class A, reinforced concrete or steel frame, 120 x 326 feet; Mercantile Place, extending from Broadway to Spring, between Fifth and Sixth; San Francisco syndicate represented by A. C. Blumenthal, owners; MacDonald & Couchot, San Francisco, architects. $2,000,000

Medical office building, 11 stories and basement, class A or steel frame, W. Sixth Street near Westlake Ave.; Medical Building Company, owners; John Parkinson and Donald Parkinson, architects; preliminary plans made and option secured on site. $875,000

Chamber of Commerce building, 12 stories and basement, class A, steel frame, 220 x 225 feet, Twelfth St., extending from Broadway to Hill St., Los Angeles Chamber of Commerce, owner; John C. Austin and John Parkinson, architects, associated; working plans being made. $2,000,000

Office building, 12 stories and basement, 75 x 150 feet, class A, Pine Ave. and Broadway, Long Beach; Walter Wallace and Cleveland Discount Co., owners; Aleck Curlett and Claud Beelman, Los Angeles, architects; preliminary plans have been made. $1,300,000

Physicians' office building, 12 stories and basement, class A, steel frame, Hope St., between Pico and Sixteenth Sts.; K. Norswing, owner; Milwaukee Building Co. preparing plans. $750,000

Loft building, 10 stories and basement, 80 x 160 feet, southwest corner of Eighth and Los Angeles Sts.; McComas Dry Goods Company, owners; John M. Cooper, architect and builder; plans being made. $200,000.

Los Angeles central library building, three stories and basement, 200 x 300 feet, class A, steel frame or reinforced concrete, Normal Hill (Fifth and Grand); Los Angeles City, owner; Bertram G. Goodhue, New York City, and Carleton M. Winslow, Los Angeles, architects; preliminary plans awaiting approval. $1,500,000

Los Angeles county jail, 11 stories and basement, 226 x 195 feet, class A, steel frame, Temple St., Broadway to New High; Los Angeles county, owner; Allied Architects' Association of Los Angeles, architects; structural plans being made in office of county mechanical engineer. $2,000,000

Department store, 100 x 150 feet, 4 stories and basement, class A, reinforced concrete, Hollywood Blvd. and Vine St.; Dr. E. O. Palmer, owner; Allison & Allison, architects; plans being prepared. $300,000

Store and apartments, 3 stories and basement, class A, steel frame, Sixth and Pine Sts., Long Beach; W. D. Lovell and E. C. Schlutsmeyer, owners; J. Horace Austin, Long Beach, architect; plans being made. $300,000

Addition to Robinson department store, Seventh and Grand, 332 x 90 feet, 10 stories and basement, class A, steel frame; Dodd & Richards, architects; contract let to Scofield Engineering Construction Co.; foundation started. $1,000,000

Rosslyn hotel annex, 12-story and basement, 60 x 159 feet, 300 rooms, class A, steel frame, southwest corner Fifth and Main Sts.; Hart Bros., owners; John Parkinson and Donald Parkinson, architects; plans being made. $900,000

Apartment building, 10 stories and basement, 145 x 145 feet, 325 rooms, class A reinforced concrete, southeast corner Wilshire and Berendo Sts.; A. C. Blumenthal, owner; Aleck Curlett and Claud Beelman, architects; Macdonald and Kahn builders. $1,000,000

Apartment building, 13 stories and basement, 155 x 150 feet, 425 rooms, class A reinforced concrete, Wilshire and Kenmore Ave.; P. B. Fletcher and J. B. Lilly, owners; Walker & Eisen, architects; Lange & Bergstrom, contractors $1,000,000

Apartment building, 8 stories and basement, 120 x 150 feet, 250 rooms, class A reinforced concrete, southwest corner Sixth St. and Park View; Lange & Bergstrom, owners and builders; Walker & Eisen, architects; plans being made. $600,000

Private hospital, 5 stories, 192 x 40 feet, with wing 60 x 40 feet, class A, reinforced concrete, Vermont Ave., near Sunset Blvd.; Hollywood Hospital Association, owner; Robert H. Orr, architect; plans completed. $300,000

St. Vincent's hospital, 60 x 200 feet, 8 stories, class A, steel frame and dormitory, 3 stories, 50 x 100 feet, Beaudry Ave. and Sunset Blvd.; Sisters of Charity, owners; John C. Austin, architect; plans being prepared.

Refinery building, 250 x 400 feet, 2 stories, designed for 5 stories, power plant and several smaller buildings and 900 feet wharf, Wilmington; main building reinforced concrete; Pacific Coast Borax Co., owner; A. C. Martin, architect; plans nearing completion. $1,000,000

Eight-Story Club Building

Architects Binder & Curtis, 255½ S. First street, San Jose, are preparing working drawings for an eight-story Class A office building for the Commercial Building Incorporated. It is to be erected on N-First street in San Jose at a cost of approximately $400,000. Construction will be started in about three months.

Store Buildings

Architect J. W. Dolliver, Monadnock building, San Francisco, is preparing plans for two store buildings to be erected in San Rafael, Marin County. One will be a two-story reinforced concrete structure to cost $40,000 and the other a one-story brick structure to cost $10,000.

Factory and Warehouse

The Westinghouse Insulator & High Voltage Company will build a $200,000 factory and warehouse at Emeryville. The plans have been prepared by Engineer B. H. Prack of Pittsburgh, and bids have been taken from a selected list of contractors.

Will Succeed Mr. McClure

Mr. S. W. Curtis of San Francisco, formerly assistant state engineer, is slated to succeed State Engineer W. F. McClure as chief of the Division of Engineering and Irrigation of the California State Department of Public Works.

With the Architects

Building Reports and Personal Mention of Interest to the Profession

Competition for Club Building

Practicing architects who are members of the Olympic Club, San Francisco, have been invited to participate in a competition for a $200,000 country club house, to be submitted by March 1st. Mr. Lewis P. Hobart is the architectural adviser, and the following are eligible to participate in the contest: Frank T. Shea, Sylvain Schnaittacher, J. R. Miller, John H. Powers, F. W. Quandt, C. A. Meussdorffer, Kenneth MacDonald, Jr., Arthur J. Evers, C. E. Gottschalk, Leo J. Devlin, F. J. Devlin, Bakewell & Brown, Earl J. Osborne, W. P. Day, J. S. Fairweather, John Galen Howard, John Baur, and E. A. Bozio.

Weeks and Day Busy

New work in the office of Architects Weeks & Day, San Francisco, includes preliminary sketches for a $1,000,000 apartment house, also working plans for a new temple for the California Masonic bodies at Baker, Fell and Oak streets, to cost $1,000,000; a theatre and office building on Grand avenue, Oakland, for George Roos, to cost $500,000; and an office building and garage at Market and 22nd streets, Oakland, for Foster & Kleiser to cost $100,000.

$100,000 Residence Apartments

Architect W. E. Schirmer of Oakland has made preliminary plans for a residence apartment house to be built just outside the restricted district in Lakeshore Highlands, Oakland, at an estimated cost of $100,000. Mr. Schirmer has recently completed plans and let a contract for eight stores on San Pablo avenue, Berkeley, for Mr. Henry Borg, and for a $25,000 residence in Piedmont for Mrs. Silverman.

Stockton Auditorium

Plans have been completed by the Municipal Architectural Commission, Stockton, for the new memorial auditorium, for which bonds amounting to $450,000 were voted and sold some time ago. The building will be constructed of reinforced concrete, the dome to be of structural steel. Plans for the building are now out for bids. Members of the commission are Messrs. Wright & Saterlee, Glenn Allen, Louis S. Stone, Franklin Warner, and J. M. Burk.

Plans for Honolulu Memorial

Plans have been completed by Architect Lewis P. Hobart for a memorial coliseum and natatorium to be built on Waikiki Beach, Honolulu, at a cost of $250,000. The plans will be forwarded to Honolulu, where construction bids will be taken.

Mr. Hobart is busy on preliminary plans for the proposed bridge connecting San Mateo and Alameda counties at Little Coyote Point, being associated with Mr. John B. Leonard, consulting engineer. The estimated cost of the bridge and ornamental approaches is $10,000,000.

Factory and Store Building

Plans have been prepared by Architect S. Heiman, 57 Post street, San Francisco, for a three-story reinforced concrete cigar factory to be built on the north side of Bryant street, east of Third, San Francisco, for Ehrman Bros., and for a one-story Class C store building, adjoining the Russ building, San Francisco, for Mr. George H. Roos and the Dunn-Williams Co. Sketches are being prepared by the same architect for a reinforced concrete theatre to seat 1000 persons and to cost $125,000.

Berkeley Bank Buildings

Two more bank buildings are to be erected in Berkeley this spring, one at Shattuck avenue and Addison street for the College National Bank, from plans by Architect C. W. McCall of Oakland, and the other at Dwight Way and Shattuck avenue for the Berkeley Bank of Savings and Trust Company, Louis M. Upton, architect.

Partnership Dissolved

Messrs. A. D. Collman and P. F. Speidel, doing business under the firm name of Collman & Speidel, general contractors and construction engineers, San Francisco, have dissolved partnership. Mr. Collman will move to Los Angeles, while Mr. Speidel will be associated with the Adam Arras Company.

Architect Moves

Architect John J. Donovan announces the removal of his offices from 512 Pacific building to the Tapscott building, 1916 Broadway, Oakland.

Granted Certificates to Practice

The following were granted certificates to practice architecture in California at the meeting of the State Board of Architecture (Northern District), held on November 28th:

Mr. Edward T. Barker, 2308-26th ave., Oakland.

Mr. Alfred Eichler, 1826 Garfield place, Hollywood.

Mr. Howard Schroeder, 2149 Broadway, Oakland.

Mr. Harry A. Thomsen, Jr., Sharon building, San Francisco.

Mr. Joseph Francis Ward, Foxcroft building, San Francisco.

Washington Chapter Officers

The following officers have been named by Washington State Chapter, A. I. A., for 1923:

President—Carl F. Gould.

First Vice-president—Louis Baeder.

Second Vice-president—R. F. Mason, Tacoma.

Third Vice-president—George Keith, Spokane.

Treasurer—Carl Siebrand.

Secretary—A. F. Menke.

Executive Committee—G. C. Field.

Convention Delegates—Carl Siebrand, Rudolph Weaver.

Traveling Scholarship Competition

The executive committee of the New York Chapter of the American Institute of Architects, as trustees of the traveling scholarship, founded by Pierre L. Le Brun, announces a competition for the selection of a beneficiary. The programme calls for drawings to be delivered about March 1st, 1923. Fourteen hundred dollars is to be awarded to some deserving and meritorious architect or architectural draughtsman, resident anywhere in the United States.

Theatre and Store Building

Architects Reid Bros., California-Pacific building, San Francisco, have completed plans for a moving picture theatre to be built on the northwest corner of Geary street and 15th avenue, San Francisco, for Messrs. Alexander E. & Joseph Levin. Estimated cost is $200,000. The same architects are preparing plans for a two-story concrete store and office building at 17th and Castro streets, San Francisco, for Mr. Samuel H. Levin.

Women's Club Building

Messrs. Willis Polk & Company have been appointed architects and managers of construction of a seven-story Class A store and club building for the National League for Women's Service. Structure will occupy the lot adjoining the St. Francis Hotel, on the south side of Post street, west of Powell, San Francisco.

Berkeley Architect Busy

New work in the office of Architect James W. Plachek of Berkeley includes a $100,000 automobile sales building and garage for the Ford & Studebaker agencies; a two-story reinforced concrete store and loft building on Center street for Mr. Frank Naylor, to cost $30,000; a one-story commercial garage on Addison street for Messrs. Robert Sproule and Lester W. Hink, to cost $30,000; and a two-story restaurant and bakery on Center street, above Shattuck avenue, for Mr. H. W. Ennor, to cost $60,000. Construction of the new Federal Land Bank building in Berkeley, designed by Mr. Plachek, is being completed by Messrs. Lawton & Vezey at a cost of $125,000.

$1,000,000 Hotel Planned

Architects MacDonald & Couchot, 234 Pine street, San Francisco, have prepared preliminary plans for a sixteen-story Class A hotel at Hyde and Market streets, San Francisco, to cost $1,000,000, and to be known as the Auditorium Hotel. The same architects have made preliminary drawings for a $350,000 six-story hotel at Marysville. Construction is now under way from plans by Messrs. MacDonald & Couchot of a $750,000 hotel for Mr. George Smith on Sutter street, and the Francesca Apartments at Sacramento and Powell streets, San Francisco, estimated to cost $1,000,000.

Honorable Mention

Two Pacific Coast architectural firms received honorable mention for their designs submitted in the recent Chicago Tribune competition. They are MacDonald & Couchot, of San Francisco, and Bebb & Gould, of Seattle. A perspective of the MacDonald-Couchot building is shown elsewhere in this issue.

An interesting fact in connection with the winning design is that Mr. John M. Howells, the winner, is senior member of the Seattle firm of Howells and Albertson. Hence it may be said that the Pacific Coast was very much in evidence in this competition.

Architectural Library

The Colorado Chapter, A. I. A., is proposing to utilize the funds accruing from the operation of the Architects' Registration Law in their state for the establishment and maintenance of an architectural library. They propose to have the Registration Law amended to that end.

Oakland Apartment House

Mr. L. H. Ford of the East Bay Planners, Oakland, has completed plans for a two-story brick apartment house, 60 x 100, to be erected on Madison street, north of 14th, Oakland, at a cost of $40,000. F. A. Muller is the contractor.

American Academy in Rome Announces Its Fellowships

The American Academy in Rome announces its competitions for fellowships in architecture, painting, sculpture and landscape architecture. The stipend of each fellowship is $1,000 a year for three years, and residence and studio are provided free of charge at the academy, with board at cost. All fellows will have opportunity for extensive travel.

The awards of the fellowships will be made after competitions, which are open to unmarried men who are citizens of the United States. Special attention is called to the fact that in painting and sculpture there will be no formal competitions involving the execution of work on prescribed subjects, as heretofore, but these fellowships will be awarded on the basis of a thorough investigation of the artistic ability and personal qualifications of the candidates. To this end candidates are requested to submit examples of their work and such other evidence as will assist the jury in making a selection.

Entries will be received until March 1st. Anyone interested should write for circular of information and application blank to Mr. Roscoe Guernsey, executive secretary, American Academy in Rome, 101 Park avenue, New York, N. Y.

Chicago Plans Exhibition

An architectural committee representing the architects of Chicago has been appointed by Mr. Alfred Granger, president of the Illinois Chapter of the American Institute of Architects, to co-operate with the Chicago Real Estate Board in staging Chicago's third annual "Own Your Home" Exposition at the Coliseum, March 24th to 31st, under the auspices of the Chicago Real Estate Board. Nearly one hundred organizations and trade associations representing all branches of the building and building materials industries have been invited to co-operate and participate.

$1550 in Prizes

The attention of architects and draughtsmen is called to the announcement of the American Face Brick Association on Page 121 of a competition for the best designs in face brickwork for the garden. The competition will close February 5th. The program may be obtained by addressing the American Face Brick Association, mentioning the Architect and Engineer. The address of the Association is 1759 Peoples' Life Building, Chicago, Ill. The prizes will be as follows: Premiated design, $500; second, $300; third, $150; fourth, $100; next ten designs, $50 each.

Stockton Architects Busy

Messrs. Davis and Heller and Pearce of Stockton have been commissioned to prepare plans for the proposed College of the Pacific buildings to be erected on a 50-acre tract in Stockton. The group will comprise seven two-story reinforced concrete, brick and terra cotta structures of the Collegical Gothic type of architecture as follows: Liberal Arts, Administration, Auditorium, Conservatory of Music, Men's Dormitory, Women's Dormitory, and Gymnasium. A large swimming tank is also included, in addition to considerable landscape work. The project will cost in the neighborhood of $650,000.

The same firm has prepared plans for a reinforced concrete and brick addition to the National Paper Products plant, Stockton, to cost $150,000.

Architect Glenn Allen, 37 S. Aurora street, Stockton, reports the preparation of plans for a three-story reinforced concrete theatre and hotel, to be erected in Lodi at a cost of $150,000. The structure will have a pressed brick exterior and Polychrome terra cotta trimmings.

Mr. Allen is completing plans for a concrete church to be erected at Center and Flora streets, Stockton, for the First Church of Christ Scientist. The building will have a terra cotta finish and purple glazed roof. Construction is estimated at $100,000.

Architects Wright and Satterlee and L. S. Stone, associated, Bank of Italy building, Stockton, have completed plans and bids have been invited for two buildings for the Lodi Union High School District, the total value of the improvements being $250,000. The buildings will consist of a two-story science structure, a one-story manual training building and a swimming tank.

Two Packing Houses

Plans have recently been completed by Engineer Phillip Bush, 101 California street, San Francisco, for two combination factory and warehouses for the California Packing Company. One will be built in Oakland and the other in Merced. The latter will cover ground area 150 x 600, and will be one-story and of brick construction.

Architect Becomes Benedict

Mr. John Bakewell, of Bakewell & Brown, architect of San Francisco, was married December 29th to Miss Hazel King ,daughter of the late Homer King. Mr. and Mrs. Bakewell have taken an apartment on Union street, San Francisco.

Mills College Architect

At the December meeting of the Board of Trustees of Mills College Mr. Walter H. Ratcliff Jr., of Berkeley, was appointed supervising architect of Mills College. For the progressive development of the campus Mr. Ratcliff will use the general architectural plan drawn by Mr. Bernard Maybeck in 1918. This plan was the gift of the late Mrs. Hearst and is known as the Phoebe Apperson Hearst general plan for Mills College. Each building to be construted in the future will conform to the outlined scheme. The new roadway recently made from the Benlah Gate, on the line of the San Francisco-Oakland Terminal Railways, to the heart of the campus is a part of this general plan. It will make the north and south axis, crossing the east and west axis near the present "College Hall." Work has already begun on this second roadway.

Mr. Ratcliff was chosen because of his two-fold interest in academic architecture —the student and the residence problems. His success in the school buildings of the East Bay region proves his knowledge of studio and laboratory needs. As City Architect of Berkeley, he was made Supervising Architect under the bond issue of 1915. In 1921 Mr. Ratcliff was awarded one of the largest schools in Oakland, for which he has not yet completed the plans. At present he is preparing plans for the Pacific School of Religion to be erected on the block bounded by Scenic and Le Conte avenues, Berkeley.

Best Architecture Is Californian

Editor The Architect & Engineer, San Francisco:

I had a letter the other day from Mr. Harold Blake Sherwin, a nephew of Mr. Wm. R. Mead of McKim, Mead & White, in which Mr. Sherwin said that Mr. Mead was of the opinion that the best architecture in the world today was Californian. A splendid boost for "Californians Incorporated."

Very truly yours,
WILLIS POLK.

Editor's Note.—A further interesting fact in this connection is that the winner of the $100,000 prize for the accepted plan of the new home of the Chicago Tribune is Mr. William Mead Howells, son of the late Mr. William Dean Howells, the eminent American author, and nephew of Mr. William R. Mead, heretofore referred to. When California architecture is thus commended it must be concluded that it is taken account of by high authority.

Fresno Office Building

An eight-story store and office building is being erected at Tulare and "J" streets, Fresno, for Mr. T. W. Patterson. Plans were prepared by and construction is in charge of the R. F. Felchin Co., Bank of Italy building, Fresno. Improvements will cost $500,000 or more.

Personal

Farrell & Miller, architects, announce the removal of their offices, January 1, 1923, to room 700, Western Mutual Life building, 321 West Third street, Los Angeles.

* * *

Architects Swasey & McFee have moved their office from 1017 Hiberian building, Los Angeles, to room 405 in the same building.

* * *

Architect W. F. Staunton, Jr., has moved his office from 200 Consolidated Realty building to 1017 Hibernian building, Los Angeles.

* * *

Mr. Arthur G. Lindley, Wright & Callender building, Los Angeles, announces that Mr. Charles R. Selkirk, architectural designer and engineer, is now associated with him in business.

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Architect Frederick John Soper has moved his offices from 1122 Story building to new and larger quarters at 1105 Kerckhoff building, Los Angeles.

* * *

Messrs. Henry J. Christensen, construction engineer, and R. V. Woods, consulting engineer, announce the removal of their offices from the Flatiron building, Oakland, to 505 Seventeenth street, at Telegraph avenue.

* * *

Mr. Frank H. Fowler, architect and engineer, and Mr. R. Hamilton Rowe, architect, L. C. Smith building, Seattle, have moved their offices from 1319 to 1721 L. C. Smith building.

* * *

Architect Joseph Weston, formerly of the offices of Messrs. Elmer Grey, R. D. Farquhar, C. M. Winslow, and W. Lee Woolett, and more recently with offices in Philadelphia and New York, has opened an office for the practice of architecture at 515 Hollywood Security Building, Hollywood Blvd. and Cahuenga Ave., Los Angeles.

* * *

Architects Walter Webber, W. F. Staunton, Jr., and Sumner Maurice Spaulding, announce the formation of a partnership under the firm name of Webber, Staunton and Spaulding, at 1017 Hibernian Building, Los Angeles.

* * *

Architects O'Brien Bros., of San Francisco, have moved to spacious offices in the California Pacific building.

Architectural Exhibit

An exhibition of photographs and drawings of buildings designed by Alameda County architects will be held in the Oakland Auditorium commencing February 3rd.

PUBLIC LIBRARY

With the Engineers

Engineers Report Splendid Year of Progress

By ALBERT J. CAPRON, Secretary San Francisco Chapter A. A. of E.

IT may not be amiss to inform you somewhat of the work which has been accomplished by the San Francisco Chapter of the American Association of Engineers during 1922.

Beginning the year with a comparatively small membership and in debt beyond means with which to pay, the membership has been increased to nearly 600, new ones coming in at the rate of better than one per day. The debt has been wiped out and a handsome surplus in the bank. The employment service has been extended until over five hundred engineers have been placed on jobs, with earnings on a yearly basis of over a million and a half dollars. Not one member is out of a job.

In public matters, the Chapter has gone into several questions of great importance, including the Water and Power Act, unmerger of the C.P.-U.P.R.R., and is now working on a License Law for engineers which it is proposed to bring before the next session of the Legislature this winter.

More and more the employer is looking toward the Association for engineers, some place where to go and get the man they want, without too much trouble in selecting that man. This Chapter is doing that work not only for its members but that which is of equal importance, the employer.

No man is turned away, neither has there been any charge to engineers for the service; it is an economic question, it is part of the work of the Association to perform that duty, and truly has it done so.

Inasmuch as engineering is the basis of all things which go to build, where shall one go except to the profession for the right kind of material with which to accomplish that best of things.

Our course is marked out, the stakes are set, the lines have been given, data is at hand, to apply it is our work, and we join with the profession to go forward, bringing the engineer more and more into the position which rightfully belongs to him.

History has not accorded the engineer that measure of prominence to which he is entitled, nor has he been given the credit for his work as deserved, one reason being that he has not, except in few instances, had his status defined by law as has the doctor, lawyer and other professions.

If we go back to the beginning of the world, if that were possible, and follow down through the ages, no mention is made of the engineer to whom is due the greater credit of performing great feats of construction. The king, the ruler and even the slave-driver gets "mentioned" by name, but never the engineer, with one possible exception, and that about the period of the third dynasty, Egypt, or about 5700 years B. C., when is recorded the construction of the first stone building, and "Imhotep" was the architect.

That piece of construction stands today almost in perfect condition and to the everlasting credit of the engineer, nearly ten thousand years have passed, wind and weather have not destroyed.

That the engineer has not attained his proper position in society of the learned professions is due in a large measure to himself; his innate modesty has been the bar-sinister; it has prevented (?) him from getting before the world in a proper manner.

One of the things which the American Association of Engineers has stood steadily behind is the enactment of state engineering licensing laws. Unless we go to the beginning of the matter, have his status determined by law, it is useless for him to even attempt to seek that to which he is entitled. The A. A. E. has secured the passage of licensing laws in sixteen states, and so far as we know nothing but benefit to the profession and the public has come from this raising of the engineer to a higher plane, for that is exactly what it does. How then shall we go about the securing of the passage of a licensing law in California except the engineer himself goes after it, and further that some one must lead in the matter. This in some measure seems to have fallen to the lot of the American Association of Engineers; at least the Association through its various chapters has accomplished results to the number mentioned above.

Thus at this time, after months of research work by a committee of the San Francisco Chapter, a bill has been drafted modeled after the so-called "Model

Licensing Law," modified to meet conditions in this State, and it is proposed to secure its enactment the coming session of the California Legislature, provided the engineers will get back of it and give it a measure of support.

Oregon to the north of us and Arizona to the south of us both have such a law; they are astisfied that it has accomplished much in the direction of elevating the engineer to his proper position, and the public, always concerned in matters of legislation, have also been benefited.

The engineering profession is the most learned of all, the requirements are of a high character, yet he has less protection than the corn doctor. We call it protection, for that is exactly what it is, not only to him, but that of even greater moment, the public. Witness, if you will, the theatre disaster in Washington, D. C. Had there been even a little care shown those lives would not have been snuffed out through the innate carelessness of incompetent men, if we are to believe the findings of investigators of that disaster. So, closing our year, we feel that the San Francisco Chapter of the American Association of Engineers has done something for all concerned, and we are girding on our armor for greater things for 1923.

To Bridge Golden Gate

Plans for spanning the Golden Gate, connecting San Francisco and Marin county by a combination cantilever and suspension bridge with towers 1000 feet high, at a cost of approximately $20,000,000, have been submitted to Mayor James Rolph Jr. by Mr. Joseph B. Strauss of Chicago, noted bridge engineer. City Engineer M. M. O'Shaughnessy furnished the engineering data upon which Engineer Strauss completed the plans of what is declared to be a design of an entirely new type of bridge, both practical and comparatively cheap.

The proposed bridge, with rigid cantilever structures at either end, would swing 200 feet above the water, with an unprecedented main center span of 4000 feet, of which 2640 would be cable, with two shore spans of 1320 feet each. Navigation would be unhindered. The average depth of water between the piers is 300 feet. The width would be 90 feet, allowing for two street car tracks, highways and sidewalks.

The two towers of the proposed bridge would rest upon solid rock and would be higher than the Eiffel tower in Paris. A series of elevators is proposed to take sight-seekers to the top of the towers.

Noted Engineer Visits California

Mr. W. C. Chappell, hydro-electric engineer, of England, known in Australasia as the man who gave Tasmania its first electric lights and electric street cars, recently paid a visit to San Francisco, having arrived from Sydney on the Union liner Maungaui, accompanied by his wife and son.

Mr. Chappell was sent to Tasmania in 1917 by large industrial and financial interests to direct the construction of the island's first hydro-electric plant, which is situated eighty-eight miles inland from Hobart. The project, which was completed several months ago, was attempted under geological disadvantages, according to Mr. Chappell.

The plant as 57,000 horsepower. Mr. Chappell, following the completion of this project, directed the construction of a carbide factory near Hobart.

As chief electrical engineer of the state electricity commission of Victoria, Australia, Mr. Chappell recently was in charge of the erection of a large steam power plant at Melbourne.

Engineer Should be Appointed

The Governor will soon appoint a successor to fill the vacancy caused by the sudden death of Commissioner H. D. Loveland of the California Railroad Commission.

San Francisco Chapter, American Society of Engineers, at its last meeting, adopted a resolution which was forwarded to Governor Stephens requesting him to appoint a professional engineer to succeed Commissioner Loveland.

The concensus of opinion among engineers seems to establish the fact that the interests of the people of the state would be best served by an appointment from the engineering profession, says Pacific Engineer.

A substantial volume of the problems with which the commission has to deal involve in their consideration and solution a proper and consistent understanding of engineering principles, not only in their technical aspect but more particularly in their broad and orderly application to the economic and business principles involved in the matters brought before the commission.

The professional engineer is particularly fitted by training and experience to grasp understandingly these problems, to analyze and co-ordinate their elements and to deduce logical and equitable conclusions, and would thereby contribute materially to the efficient functioning and service of the commission by being included in its membership.

Designs Palo Alto Gardens

Mr. Emerson Knight, landscape architect and engineer, San Francisco, has completed plans for the residence garden of Mr. E. J. Thomas at Palo Alto, California.

The Contractor

Does An Architect Make a Good Contractor?*

"A Man Who Is His Own Attorney Has a Fool for a Client"

By J. C. EDWARDS, Pres. So. Calif. Chapter, A. G. C., Los Angeles

FROM the subject which has been given me, it would appear that you, gentlemen, as architects, have awakened to the fact that there is a growing tendency to depart from what has heretofore been generally recognized as the proper procedure in construction—that of an owner commissioning an architect or an engineer, and he, in turn, letting a general contract by the competitive bid method.

This procedure is well established and sound and, if the principles involved therein are adhered to, there is no occasion for nor will there be any departure therefrom.

There is no denying the fact, however, that owners, architects, and contractors are departing from this procedure; and it necessarily follows that their departure is the result of a belief that by so doing they can better accomplish their purpose.

It is to be expected that my viewpoint of the situation is from the standpoint of a contractor, or perhaps I should say from a group of contractors, as I am speaking for the Southern California Chapter of the Associated General Contractors, and I desire to say here that our association deems it a privilege and an honor to be given the opportunity of addressing you on this subject.

Why do some owners, architects, and contractors feel that their purposes can better be served by a departure from the regular procedure?

In so far as the owner is concerned there is only one season—he is made to believe that by so doing he is increasing the purchasing power of his dollar.

Generally speaking, this is not true. Whether the departure be along the pathway of day-labor methods, percentage contracts, fixed-fee contracts, segregated contracts or what not, the owner's interest will not, in the long run, be as well served by any of them as by a lump-sum form of contract in which the contract price has been determined by the taking of competitive bids.

Do you gentlemen suppose for one minute that the citizens of Los Angeles would have voted to spend seventeen million dollars for the construction of new school buildings or twelve million for a new outfall sewer, had they thought this money would be expended in any manner than by contracts based on competitive bids from general contractors?

I can only assume as to why the architect ventures a departure. It may be due to the influence of the owner. It is probably very often due to the additional fee he receives, and just as often because he feels that by so doing he will obtain a more satisfactory execution of his plans and specifications.

A contractor's reasons are many, some of them fancied and some of them real. A goodly number have no foundation whatever, and these are generally the result of his lack of appreciation of the obligation he assumes by the signing of a contract.

I intend to be very frank and name a few of the real reasons why contractors, who feel themselves capable, encroach on the architect's field.

The construction industry, of which we are both such a vital part, is now conceded to be the second largest industry in the country, second only to agriculture. There has been a decided change in the personnel of the general contractors in that industry during the past 20 years or even during the past 10 years. Improved methods are definitely eliminating the rule-of-thumb contractor, and the contractor of today feels that he is entitled to and should receive the same recognition as the architect or engineer.

Your profession has permitted commercialism to gain such a foothold that, in many cases, completeness of plans and specifications is sacrificed in order that more of the fee may be retained as a net profit. Where this is done controversies arise, extras are claimed, and both owner and contractor are dissatisfied.

The thing that makes Government red tape on construction work bearable is the wonderful completeness of the plans and specifications and the exactitude with which one can determine the volume and kind of work to be done.

The custom of calling for such a multitude of alternate bids is not looked on with favor by the contractor. He feels that it is part of your service to the

*Address before the Southern California Chapter, American Institute of Architects.

owner to predetermine the volume of work to be done and the kind of materials to be used.

Contractors feel that in many cases bids are requested and their time consumed in preparing estimates on work, when the architect knows there is not even a remote possibility of the work going ahead; and it is a very common occurrence for a contractor to submit a proposal to an architect and for that proposal to be held for a month or more without being accepted or rejected, the contractor being unable to obtain any information regarding same. This is obviously unjust and should not be continued if it is your intention to recognize the service rendered to the industry by the contractor.

Draw your contracts so as to show fairness to both parties concerned, the owner and the contractor. Insert an arbitration clause in them so that honest differences may be settled out of court. This may be working a hardship on our friends, the attorneys, but nevertheless it is a most satisfactory way of adjusting disputes.

In your contracts and specifications avoid the shifting of responsibility. I have seen contracts based on specifications which provided that the contractor was to assume all responsibility for plans and specifications complying with city ordinances.

Conditions such as I have mentioned have a tendency to create a desire in the contractor to undertake himself the architectural service necessary to a construction project, and it is with increasing frequency that you hear of it from the larger contracting firms.

Please do not think for one moment that I fail to appreciate the fact that in many instances contractors have, by their unsatisfactory methods, driven the architects to seek a method whereby they might be eliminated.

It is necessary, however, that we tell you our troubles and you tell us yours if anything is to be done to check this tendency to encroach on one another's field.

There never was a truer saying than this: "A man who is his own attorney has a fool for a client." The principle is applicable to construction. We each have a distinctive service to perform and I doubt very much the ability of either of us to successfully assume the other's position.

Our Association will heartily endorse any effort on your part to eliminate the undesirable man in the business, because by so doing we both will be rendering a really honest service to the public. Unless such a service is rendered there is no justification for the existence of your, ours, or any similar organization.

Bonding Irresponsible Contractors

By giving bonds to irresponsible contractors, surety companies not only spoil the experience and profits of their own company but greatly interfere with the obtaining of a legitimate profit by their better class of clients. By qualifying on the bonds of the undesirable contractor, surety companies obtain bonds on which they suffer loss and trouble, and by their action keep the work from going to reliable concerns of experience and responsibility. It is human nature that when a contractor of good standing loses six or eight jobs by a narrow margin because of the ridiculous bidding of the irresponsible bidder, he will take the last desperate chance and cut away his profits entirely, hoping for the breaks to help him over the rocks. Why is this necessary? Because some bonding company wanted the business of the irresponsible contractor and did not sense the resentment of the legitimate contractor who was pitting his recognized ability, both of a practical and financial nature, against a gambler. What chance has a man who plays against loaded dice? In the same breath one is tempted to compare the sure-thing gambler with the contractor of no standing who is able to secure a bond.—The Scraper.

A Relevant Question

The builders were suing for their bill in the county court, and the other side produced a rival builder to prove that the work had not been well done, and that the estimates were excessive.

The witness did not look as if he were a college man, but there was plenty of confidence in his voice as he answered the questions put to him by the counsl for the side which was calling him.

"You have looked into this bill thoroughly?"

"Oh, yes."

"And gone over the details?"

"Yes."

"You have given careful consideration to each item as well as to the bill as a whole?"

"Oh, yes."

Counsel looked around the court with an air of triumph as he put his next question. "And may I ask what conclusion you arrived at regarding it?"

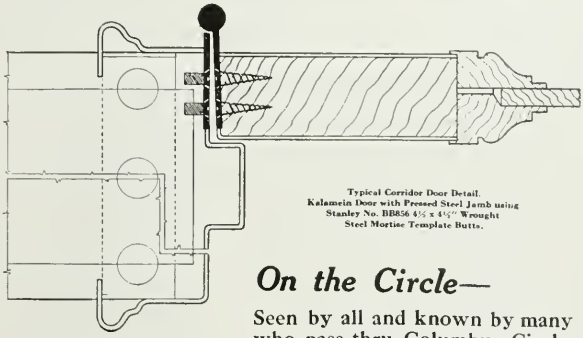
"One moment," interposed the judge. "Let me ask the witness a question. Can you read?"

"No, your honor."

Collapse of defendant's case.—Minneapolis Tribune.

Americans the Best Exponents of Concrete Construction

Americans are the finest exponents of concrete architecture of any people in the world, was the comment made by Mr. K.



Typical Corridor Door Detail.
Kalamein Door with Pressed Steel Jamb using
Stanley No. BB856 4½ x 4½" Wrought
Steel Mortise Template Butts.

Scale: 1/3 full size

On the Circle—

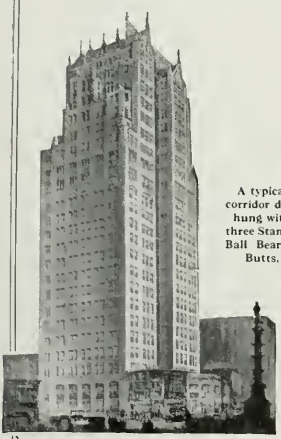
Seen by all and known by many who pass thru Columbus Circle, New York City, stands the stately Gotham National Bank Building, an impressive type of architecture

The doors on the twenty-three floors of this building are equipped with

Stanley Ball Bearing Butts

For permanency standardize on Stanley

Architects:
Sommerfeld & Steckler
Consulting Architect:
Kenneth M. Murchison



A typical corridor door hung with three Stanley Ball Bearing Butts.

Stanley No. BB856 4½ x 4½" Wrought Steel Mortise Template Ball Bearing Butt for Metal Doors.

THE STANLEY WORKS
New Britain, Conn.

NEW YORK CHICAGO
San Francisco: Monadnock Bldg.
Los Angeles: 703 Washington Bldg.
Seattle: 501 Maynard Bldg.

T. Wedsted, civil engineer of Copenhagen, who recently visited San Francisco to consult with engineers in regard to several large projects.

Mr. Wedsted is regarded as an authority in concrete construction and has erected some of the largest buildings of Siam, Indo-China and the Dutch East India. Among them is a seven-story building at Singapore and a five-story structure at Shanghai.

"Anything above two stories is regarded as a skyscraper in the Orient," said Mr. Wedsted. "That is why they now call me the 'pop of the skyscrapers.'"

Elevator Men Meet Westinghouse Official

FRANK M. SPENCER of San Francisco, when he returned from the recent convention of elevator manufacturers in New York City, told of plans for co-operation between independent elevator manufacturers and the Westinghouse Electric & Mfg. Co.

Elevator installations, in general, are a product of mechanical and electrical co-operation.

To design, manufacture and install, in compliance with modern traffic requirements, State laws, city ordinances, engineering codes and prevailing elevator practice, the multitude of appliances which make up the mechanical equipment of an up-to-date elevator installation, is a vast task in itself, requiring many years of deep study and strenuous effort.

The Westinghouse Company builds a large amount of elevator motor and control equipment. This equipment is sold through elevator manufacturers in all parts of the country. After the recent convention of elevator manufacturers in New York City, J. M. Curtin, manager of the Industrial Sales Department for the Westinghouse Company, called a special session of those elevator manufacturers using Westinghouse equipment. At this and the following sessions a great many of the faults in electrical elevator equipment and a great many possible improvements in the equipment were brought out. The discussion resulted in the adoption of a very definite and widespread policy of co-operation, which will apply not only to the designing and installing of Westinghouse elevator equipment, but to the advertising of that equipment by elevator manufacturers as well.

Among the leaders in the discussion was Mr. Spencer, who has for a long time been capitalizing on the name and reputation of the Westinghouse Company in his advertising. Mr. Spencer has been for sixteen years the head of the Spencer Elevator Company of San Francisco. His concern has recently been credited with

Welfare of the Rising Generation

Sunshine and air are indispensable and dominant influences in behalf of growing youngsters.

The playhouse, playroom or nursery should have an extra area of window glass, to the extreme limit allowed by heating considerations.

A fitting finish to well-drawn plans is to specify American Window Glass Company's Products.

American Window Glass is carefully graded under double inspection, well flattened and of uniform strength. Architects who know this will, of course, specify it and not just "single or double-strength glass."

For your protection and assurance of quality the long ellipse appears on every box of the genuine, together with the grade marking, A or B. Specify the best.

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for California Buildings

COLUMBIA MARBLE

Quaried in California

This organization has lately been reorganized with additional capital. Our facilities are such that we are able to furnish Columbia Marble for the largest construction work. Large stock always on hand for immediate deliveries to contractors and dealers.

Among the many installations of Columbia Marble in San Francisco are the following: Merchants' Exchange Building, Alaska Commercial Building, Old Standard Oil Building, Rialto Building and new Call Building.

We will be glad to have architects call on us for samples or further information relative to the use of Columbia Marble in the buildings they are designing.

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413 Rialto Building San Francisco, Cal.

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Kennedy Valves have been proving their complete dependability for 44 years. You can safely standardize on the big Kennedy line of 600 different sizes and types. Kennedy Valves are simple and easy to operate, remain tight, and have practically no maintenance cost, as is being shown over and over again by installations 35 and even 40 years old, and still fully serviceable in every-day operation.

There is a Kennedy Valve for every requirement on any type of service. In the vast majority of cases a standard Kennedy will be found suitable, but if special design or difference in flange drilling or threading standard is desirable, we will build special at reasonable cost. 180

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Sales Offices: Philadelphia, Salt Lake City, El Paso

large installations both in the Bay District and other parts of Northern California. His particular favorite in the elevator motor equipment field is the variable voltage gearless traction passenger elevator motor and control manufactured by the Westinghouse Company. This is the equipment which he is installing in contracts recently awarded him, a great number of which are already in successful operation in various continental cities. A great number of these installations are already in successful operation in other parts of the country.

With the Westinghouse Variable Voltage Control System, each elevator motor is connected to a specially wound direct current generator, driven by a motor obtaining its current from either a direct current or alternating current supply.

The elevator is started, stopped and reversed by manipulating the voltage of the generator. This permits an exceptionally wide range of speed control with perfectly smooth and rapid acceleration and deceleration. As the brake is applied after the elevator is brought to a stop by the control, all shock or jar is eliminated.

Six-Story Office Building

Plans are being prepared by Architect W. H. Ratcliff, Jr., Berkeley, for a six-story concrete store and office building for physicians and dentists, at the corner of Durant street and Shattuck avenue, Berkeley, for Mr. Lester W. Hink. There will also be a one-story market, 30 x 100 feet. The improvements will cost $175,000.

New Type of Concrete Wall Construction

Architects and engineers who have investigated the Thermo Wall Construction which has been used to a considerable extent in Oakland and vicinity the past year are reported as favoring this type of building because of the successful results attained, and undoubtedly the system will be used very extensively in the future. The Thermo process will permit dead air space between the walls, thus insuring a cool house in hot weather and warmth in cold weather. There is no danger of dampness with this type of wall, while possibility of cracks and leaks, due to shrinkage or expansion, is entirely eliminated. The cost of building a house or garage by this method is very little more than other types. Thermo Wall Construction insures a permanent building with minimum repair bills.

A garage has recently been completed at Fortieth street and Telegraph avenue, Oakland, for Mr. M. Missevich. This building is 50x100 feet. At Sixty-fourth and Avenal avenues, Fruitvale, a five-room bungalow has just been completed.

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Louisville, Ky. 415 West Main St.
Birmingham, Ala. 426 Jefferson Co. Bank Bldg.

CANADA
Associated with Robert Mitchell Co. Ltd.
64 Belair Avenue, Montreal

Completed building of the Metropolitan Life Insurance Company, San Francisco, Calif.—J. R. Miller, Architect—Executed in white mattglazed Terra Cotta with polychrome frieze. (The original building designed by N. Le Brun & Sons is incorporated as one wing of the complete structure shown.)

COLOR *and* PRECEDENT

GREEK architecture in its finest period drew lavishly upon the resources of color for the enhancement of formal style.

The Metropolitan Life Insurance Company Building illustrates an effective adaptation of this chromatic precedent. Its pure white Terra Cotta facade is enriched by the brilliant polychrome frieze in which detail is developed in white, green and yellow glazes upon a luminous blue field.

Literature on color and the principles of its application will be sent free to recognized architects, draftsmen and professional schools. Address: **National Terra Cotta Society,** 19 West 44th Street, New York City.

TERRA COTTA

Permanent *Beautiful* *Profitable*

It is one of the most attractive stucco-finished houses on the street. There is no metal lath used outside or in, the exterior being stuccoed with a pebble dash applied direct to the wall. Any color desired may be used. The Thermo Wall Construction Process is the invention of Mr. O. G. Nicholas and has been used extensively in Oregon and Washington. The patent rights in Northern and Central California are controlled by Mr. R. O. McCline, 1315 Fruitvale avenue, Oakland, and he will be pleased to furnish architects and builders with all necessary advice regarding the cost of construction. In fact, Mr. McCline is himself prepared to figure and build most any type of building using the Thermo Process in place of the usual wood or concrete frame.

Six new houses built by the Thermo-wall steel forms system are now under course of construction under the direction of Mr. McCline. Five houses have been started on Sixty-third avenue and Foothill boulevard, and another is being built on Fruitvale and Woodbine avenues. Mr. McCline reports that he is at work upon a plan for the construction of twelve additional houses to be built by this process, and that steady inquiries are being received from prospective home-owners who are interested in fireproof concrete construction.

Pumping Unit Contract

A contract for furnishing two pumping units to the Bureau of Water Works and Supply, City of Los Angeles, has been awarded to the Pelton Water Wheel Company, of San Francisco, for $7126. These pumps will be installed at the Riverside pumping station. Each unit will consist of two special 14-inch centrifugal pumps connected in series. The head will range between 250 and 300 feet, and the capacity at the higher head will be 4500 gallons per minute. Each unit will be direct-driven by a 500-h. p. motor, to be supplied by the Electric Machinery Manufacturing Co., of Minneapolis.

Concrete Club

The latest addition to the growing list of Los Angeles trade organizations intended to advance the multifold interests comprising the construction industry, is the Concrete Club, embracing all those elements related to the production and use of concrete. The club will hold weekly luncheons on Tuesday at Rector's Cafe, 215½ West Fourth street, convening at 12 o'clock noon and terminating its sessions promptly at 1:15.

Landscape Gardening

Mr. Emerson Knight, landscape architect, 704 Market street, San Francisco, is preparing plans for the garden of Mrs. O. A. Hale, at 2000 Broadway, corner of Laguna street, in San Francisco.

MR. ARCHITECT —

Hardwood trim is not expensive

Hardwood inside finish in a room may be had all the way from $50 to $200 more than pine. A prominent contractor, figuring a living room 18 x 28 feet, with elaborate millwork, especially run mouldings, a 33-in. veneered panel base—everything of the best—gave the owner a figure on Mahogany, Quartered Gum, Koa, or Quartered Oak of $130 higher than Pine. This was a very large room and had two especially built doors.

Mr. J. M. Peters, the local builder, has just completed at 724 Third avenue, this city, a very attractive interior in Hawaiian Koa. Some noticeably fine doors, built-in buffet, and a beautiful solid staircase, as well as the windows and dado base, are all in this high-class hardwood. The house cost $9000. It is the first of five which Mr. Peters has decided to finish in Koa, and he is well pleased with his results.

For store and office building interiors a fine light finish is achieved with Primavera or White Mahogany, as it is called. Foster & Orear's beautiful candy shop at 137 Geary street, this city, is an excellent example of Primavera finish.

By suggesting hardwood interior trim and giving figures showing its slight cost over softwood you will render a valuable service to your clients as well as give expression to your own individuality.

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$1550 *in Prizes*

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Best Designs in Face Brickwork for the Garden

PRIZES

Premiated design will receive	$500.00
Design placed second will receive	300.00
Design placed third will receive	150.00
Design placed fourth will receive	100.00
The next ten designs will each receive	50.00

Competition closes at noon,
Monday, February 5, 1923

For complete program see the November, December or January issue of Pencil Points, or write to the American Face Brick Association

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Fewer Injuries in 1921 Than in 1920

The outstanding fact in the annual report of the Industrial Accident Commission of the State of California, as submitted to Governor William D. Stephens, is that there was a decrease of 42 industrial deaths in 1921 as compared to 1920, the totals respectively being 550 and 692. The statistics further show a reduction of 38.39 per cent in the industrial death rate of California for the calendar years 1914 to 1921, inclusive.

There were 1,643 permanent injuries reported in 1921 to the Commission, as compared to 1,429 in 1920. There was also a reduction in temporary injuries, as shown by the totals of 123,336 in 1921 and 131,587 in 1920. In 1921 temporary injuries to the total of 60,685 did not cause loss of time from work.

Out of the 550 deaths last year there were 453 compensable and the remaining 97 did not come under the Commission's jurisdiction. The record shows that 114 were caused by varied classifications; 98 by railroad, vessel and stevedoring operations; 90 by construction; 78 by manufacturing; 71 by public utilities; 53 by mining, quarrying and oil producing; 46 by agriculture.

There were five women killed while at work in 1921; the similar total in 1920 was three.

Total dependents to the number of 701 resulted from 302 fatalities, 117 partial dependents were left in 59 cases, in 159 cases there were no dependents, and in 30 cases the degree of dependency was unknown. The average age of the widows was 38.7 years. The dependent children averaged 8.8 years.

The average age of the 550 workers killed during 1921 was 38 years. The average wage was $33.39 a week. In 1920 the average age in the fatal cases was 37 years and the average wage $31.78 a week.

Life pensions were awarded in 9 cases of serious and permanent injuries. There were 16 such injuries in 1920. Injuries that caused time loss of over seven days numbered 32,286.

The Statistical Department's report shows that in 1921 there were 237 permanent eye injuries, 27 arms amputated, 658 fingers lost, 23 legs or feet lost, and 60 toe amputations.

Occupational diseases numbered 576 in 1921, as compared to 596 in 1920.

Berkeley Store Building

Architect W. E. Schirmer, of Oakland, has prepared plans for a one-story brick and tile store building to be erected at Shattuck avenue and Haste street, Berkeley, for Mrs. Millicent Merriweather. The building will cost $20,000.

C. H. Johnson, St. Paul, Minn., Architect
Rochester Electric Co., Rochester, Minn., Electrical Contractors

Holtzer-Cabot

St. Mary's Hospital, Rochester, Minn., is the home of the world's foremost surgeons, the Mayo Brothers.

The famous Holtzer-Cabot signal systems were specified for St. Mary's Hospital.

The plans from which St. Mary's Hospital were built are the result of thirty-three years invaluable experience in hospital work.

Holtzer-Cabot electric signal and fire alarm systems are the result of over forty years concentrated study of these important factors in hospital equipment. In the hospital where these famous surgeons carry on their wonderful work every particle of equipment is as near perfection as possible. That is why Holtzer-Cabot systems were specified and installed.

Holtzer-Cabot electrical signal systems have proved their unexcelled worth in the leading hospitals, schools, industrial and public buildings throughout the length and breadth of this continent.

Architects and engineers are invited to write for two brochures entitled "Signal Systems for Hospitals" and "Signal Systems for Schools," which give detailed information of the various types of signal and alarm systems made by the Holtzer-Cabot Electric Co.

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Baltimore, Md.: 1104 Union Trust Bldg.
San Francisco, Cal: 408 Claus Spreckles Bldg.
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100% Sanitation *60% New Economy*

Union High School, Palo Alto Allison & Allison Architects

AIRDRY Serves This Modern School

In early July, six pedestal Airdrys were installed in the Union High School at Palo Alto. And now orders have been placed for additional models for use in the new gymnasium, now under construction. Repeat orders, such as this, provide actual testimony to the worth, durability and service of "The Electric Towel."

AIRDRY, "The Electric Towel," renders a superior towel service at a lower cost, improves sanitation, lessens fire hazard, and is ready for use at all times. Comparisons of cost and result upon request.

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Something About Keene's Cement

Best Bros. Keene's cement not only sets slowly but hardens slowly—walls plastered with it are appreciably harder in six months than in one. It does not turn soft or chalky, and any form of mural decoration may be applied with entire confidence in its resulting permanency. While Best Bros. Keene's cement possesses such a high tensile strength, it is not hard or brittle. When mixed with the proper proportion of lime, it makes a plaster that is essentially tough and durable, and will give satisfactory service for as long as any other part of the structure.

Reference has been made to the fact that Best Bros. Keene's cement will keep indefinitely if properly stored. It does not deteriorate and will attain the same degree of strength after several years as it would when first made. An architect may safely specify Best Bros.' with the knowledge that the material delivered at the building will be of good quality, whether it is in a large city or a small one, whether supplied from warehouse stock or direct from the mills.

The inherent property of Best Bros. Keene's cement to stand re-tempering is one of the greatest importance. Of all plastering materials, only lime and Keene's cement may be re-mixed without injury to their quality. If any attempt is made to re-temper plaster of paris, or any composition of which it forms a part, it becomes "dead" or loses its setting power. A very small quantity of "dead" plaster mixed in with a batch of fresh material will spoil the whole amount, while if such plaster is applied to the wall it is certain to cause trouble and expense.

This danger is avoided when Best Bros.' cement is used. Whenever necessary, it can be re-mixed until again of the required consistency. Keene's cement is never "dead" until it has set too hard to be broken down, so that all the material applied to the wall is sure to be of proper quality and to attain its full strength. This same feature makes Best Bros.' cement well adapted to water floating, and the finish coat can be worked over until any desired degree of smoothness or polish is obtained and all marks of joinings between the different batches are eliminated.

The re-tempering of Best Bros.' cement results in an entire absence of waste. Best Bros. Keene's cement is handled in San Francisco and Bay territory by the John R. Steffens Lomax Company, Monadnock Building.

WE have been telling you each month in the Architect and Engineer about the quality, service, and comfort of "CALIFORNIA" Wall Beds, but it is impossible in this way to tell you all that we want you to know.

A pamphlet has just been printed showing the complete line of "California" Wall Beds. This will enable you to properly specify Wall Beds for the apartment, flat, or home you are designing.

It isn't necessary to sell you on the utility of wall beds, for nearly every apartment and flat has wall beds and they are gaining in popularity in the small homes. It's just a question of selling you on the merits of the "CALIFORNIA" Wall Bed. This isn't hard after we get you interested, for we have a good product. Our business in 1922 was eight times greater than 1921.

A phone message or postal will bring a representative to your office, or if you have the time visit our enlarged display rooms, where the complete line of "CALIFORNIA" Wall Beds are shown.

Page 2072

California Wall Bed Co.

714 Market Street, San Francisco
Sutter 1422

165 Thirteenth Street, Oakland
Lakeside 1186

Architectural Club Committees

Mr. Clifford A. Truesdell, Jr., president of the Architectural Club of Los Angeles, has appointed the following committees to serve for 1923:

Atelier Committee: J. E. Stanton, chairman; Fitch Haskell and Donald Wilkinson.

Executive Committee: Earl Gillerson, chairman; Harbin Hunter and Archie Zimmerman.

Budget: Saul Brown, chairman; Emmett Davis and Geo. A. McKinney.

Constitution: Maurice Ransford, chairman; Kenneth Albright, Joseph Feil and Albert E. Gogsetti.

Education: Arthur Raitt, chairman; David Allison and Joseph Weston.

Entertainment: Albert Pike, chairman; Julian Garnsey and Roy Kelly.

Exhibit: Winchton L. Bisley, chairman; Robert Murray and Paul Williams.

Furnishing and House Committee: Henry Davis, chairman; J. E. Stanton and Chas F. Brunckhorst.

Library: Fitch Haskell, chairman; Walter Davis and Lee Fuller.

Membership: H. C. Chambers, chairman; Paul W. Penland and Gano Chittenden.

Press: George Seymour, chairman; Paul W. Penland and Gene Verge.

Reception: H. Roy Kelly, chairman; Lee Fuller and William Stryker.

"Small-House" Committee: Sumner M. Spaulding, chairman; Pierpont Davis and G. Lawrence Ott.

Year Book: Lloyd Rally, chairman; Edwin Bergstrom and Harwood Hewitt.

Regular meetings are held by the club the first Tuesday evening of every month at the club rooms in the Rapid Blue Print Bldg., 818 Santee Street.

Portland Cement Stucco

The Portland Cement Association, 111 West Washington street, Chicago, has issued "Portland Cement Stucco," a book especially prepared for architects and builders. In addition to the many photographic illustrations of stucco-finished residences and of various types of finishes possible with stucco, it contains instructions recommended for use in the application of this material and drawings of typical construction details for stucco coverings on various types of buildings.

Book Concern to Build

The Holmes Book Company will build either a two or five-story store and loft building at 17th and Franklin streets, Oakland. The lot is 30 x 150. There will be at least seven stores.

SECO

The Safest Switch-Board on the Market

THE "SECO" Sectional Compartment Safety Type Switch-Board is constructed to meet all legal requirements and to actually prevent any possible chance of injury to the operator. All "live" parts are entirely enclosed. Access to fuses by the operator is possible only through the fuse compartment, the door to which **cannot be opened** while the switch is closed, hence no "accidents" can happen.

In designing this new type of switch-board, "SECO" engineers have been governed by prevailing safety laws for electrical apparatus and installation, by the necessity of conserving space, as well as the convenience of installation, operation and inspection, accomplishing these important features at a low and reasonable cost.

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BULLETIN FIVE

Safety Electric Manufacturing Company

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Between Sixth and Seventh, Folsom and Harrison Streets

San Francisco, California

WESTERN VENETIAN BLINDS

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THE tendency in present-day architecture to recognize the value of larger window area is exemplified in modern buildings everywhere.

The windows in the photographic reproduction above are an example. They are equipped with WESTERN VENETIAN BLINDS, each window requiring only one blind 16 ft. 7 in. wide by 13 ft. 8 in. high. Even though unusually large in size, these blinds operate perfectly, and can be instantly adjusted to properly regulate the distribution of daylight.

Whatever the size of the window, WESTERN VENETIAN BLINDS will render a service in lighting and ventilation *not to be equaled* by ordinary types of window equipment.

Write for special Bank and Office Building Catalogs

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The curious method of filling portland cement sacks —filling them upside down after they have been tied— is a striking example of progress made in industrial processes.

Until twenty years ago, cement sacks were filled practically as all other sacks always had been. You had a huge bin of this finer-than-flour material. A workman at the door of the bin hung a sack up, with its mouth open, on a wooden frame and filled it with an ordinary shovel. Then he set it on a scale, and with a hand scoop adjusted the weight of the contents to the exact 94 pounds required, after which he tied the sack by hand and tossed it on a truck to be hauled into a freight car.

That was the way as little as twenty years ago, and no one had thought much of doing it differently.

But now what happens?

The cement is taken from the bin by an automatic conveyor—a moving belt or bucket chain—and elevated and dumped into the hopper of a filling machine. This is a small bin with an elaborate mechanism including a fan inside; and at the bottom of it is a 1-inch spout through which the cement flows like water. The filler sits at the spout. Sacks have been brought to him already tied at the top but with an opening guarded by a valve at the bottom. The filler slips the opening over the spout and turns on the cement. When the sack is filled to exactly 94 pounds it tips a scale, automatically turns off the cement, and with a little push from the filler falls on another moving belt that carries it out and drops it at the freight car door.

By the old method, a team of four men could fill and load 1,600 sacks a day. By the new method, a similar team can fill and load 8,000.

The filling machine is costly, and royalties must be paid on the valve sack process, but the new arrangement has meant a considerable labor saving. It has meant especially that the manufacturers have been able to get their product out more promptly to users during the rush period of summer and fall. For in that period labor of the kind required for sacking and loading is generally hard to get.

Even with the improvements, a medium sized plant—one producing a million barrels of cement a year and employing not more than 300 people altogether—must normally employ 60 people in its sacking and loading department.

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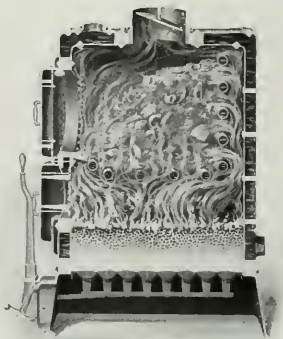

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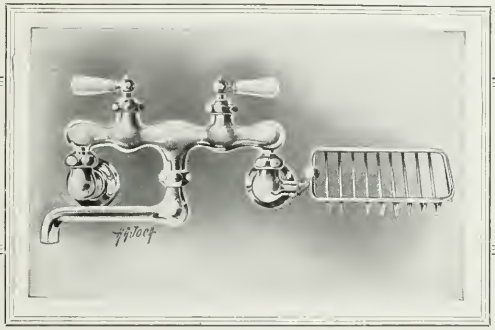

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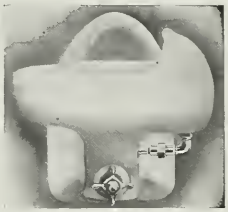

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Los Angeles Architects' Work To Be Exhibited in San Francisco

Los Angeles architects report a large attendance at the Architectural Exhibition held under joint auspices of Southern California Chapter, A. I. A., and the Architectural Club, at the county museum in Exposition Park. After January 31st all the photographs and drawings will be sent to San Francisco for exhibition. More than 1000 different exhibits, including drawings, photographs of executed work, paintings and models, were placed by the hanging committee.

Coincident with opening of the exhibit, announcement was made of the honor awards of the Chapter in architecture and fine arts. These awards were made by a jury composed of Messrs. Arthur Brown, Jr., John Galen Howard and Ernest Coxhead, all of San Francisco.

Following is the list of honor awards:

Section 1, Single Dwellings:

Class A, 6 rooms and under; residence, 171 Catalina St., Los Angeles; Henry F. Withey, archt.; E. L. Liebke, owner.

Residence, 208-10 Witmer St., Los Angeles; Witmer & Watson, archts.; Mrs. J. H. Witmer and Mrs. David J. Witmer, owners; J. V. Gierding, contractor.

Class B, 7 to 12 rooms; residence, Pomar Lane, Montecito; Soule, Murphy & Hastings, archts.; Frederick L. Baxter, owner; Alexander McKellar, contractor.

Residence, 1730 Sycamore St., Hollywood; Harwood Hewitt, archt.; Mrs. Alice Lynch, owner; Davina Craig, contractor.

Class C, 13 rooms and over; residence, 500 S. Rossmore, Los Angeles; Pierpont Davis, archt.; Pierpont Davis, owner.

Residence at La Canada; Harwood Hewitt, archt.; W. P. Hanson, owner; A. C. Miller, contractor.

Section 2, Multiple Dwellings:

Class E, club type, city; University Club, Los Angeles; Allison & Allison, archts.; Foundation Company, E. Peterson, contractors.

Class F, club type, country; Flintridge Country Club, La Canada; Myron Hunt, archt.; Flintridge Country Club, owner; James Johnson, contractor.

California Yacht Club, Wilmington; Edwin Bergstrom, archt.; California Yacht Club of Los Angeles, owner; John Simpson, contractor.

Section 3, Commercial Buildings:

Class A, mercantile buildings, 4 stories and under; studio and stores, 405 Western Ave.; Henry F. Withey, archt.; Henry F. Withey, owner.

Class C, industrial buildings; Limoneira Packing House, Santa Paula; Allison & Allison, archts.; Limoneira Company, owner.

Class D, commercial buildings not included in Classes A, B, and C; County National Bank, Santa Barbara; Myron Hunt, archt.; County National Bank & Trust Co., owner; Parker Brick Co., contractors.

Bank of Italy Building, Los Angeles; Morgan, Walls & Morgan, archts.; Bank of Italy, owner; Lange & Bergstrom, Tropico Potteries, contractors.

Section 4, Semi-Public and Cultural Buildings:

Class B, libraries, colleges, academies, etc.; Whittier College at Whittier; Allison & Allison, archts.; Whittier College, owner; Daniels & Farris, contractors.

Huntington library, San Marino; Myron Hunt, architect; Henry E. Huntington, owner; W. C. Crowell, contractor.

Section 5, Schools:

Class A, high schools; Union High School at Palo Alto; Allison & Allison, archts.; Palo Alto Union H. S. Dist., owner; E. A. Heddinger, contractor.

Class B, intermediate schools, 9 rooms and under; Glendora Intermediate school No. 2, Glendora; Allison & Allison, archts; Glendora Grammar School Dist., owner; Henry Clarke Co., contractors.

Section 9, Landscape Work:

Class D, private estate over 1 acre; Meyer estate, Beverly Hills; Johnson, Kaufmann & Coate, archts.; Paul G. Thiene, landscape; Ben R. Meyer, owner; Bradley Constr. Co., contractors.

Severance estate, 30 Oak Grove, Pasadena; Johnson, Kaufmann & Coate, archts.; Paul Thiene, landscape; John L. Severance, owner.

Section 10, Architectural Photography in Fine Arts:

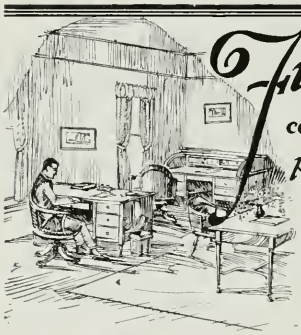
William M. Clarke.

Special Award, Distinguished Honor in Architecture:

Robert D. Farquhar; mausoleum for W. A. Clarke Jr., in Hollywood Cemetery.

Anniversary Banquet

On Wednesday evening, January 10th, the firm of Barrett & Hilp, general contractors, 918 Harrison street, San Francisco, held a "Get Together" banquet at the States Restaurant for their superintendents of construction and heads of various departments, to commemorate the first ten years of successful operation in San Francisco. Improved methods of building construction and ideas for promoting harmony between contractors, architects and owners were discussed at length. Messrs. J. F. Barrett and H. Hilp outlined some of their interesting experiences in building construction in the era immediately following the great fire. A spirit of harmony and encouragement for prospects for the new year characterized the meeting.



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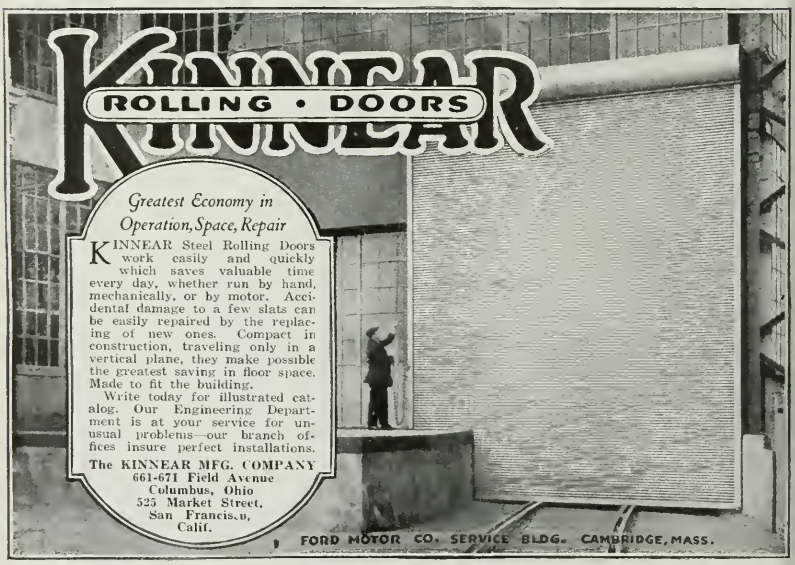
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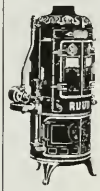

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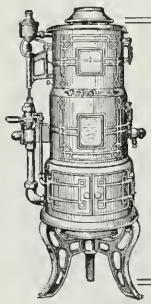

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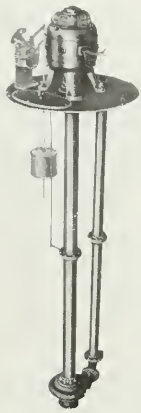

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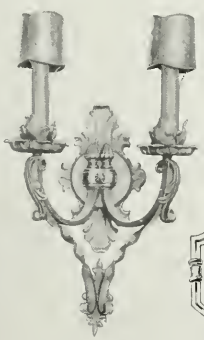

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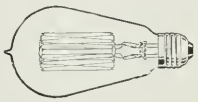

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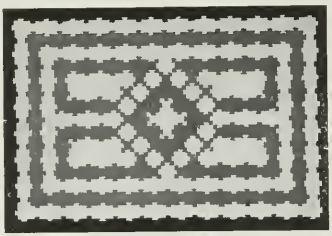

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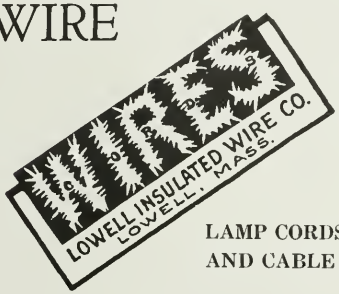

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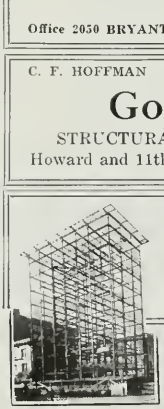

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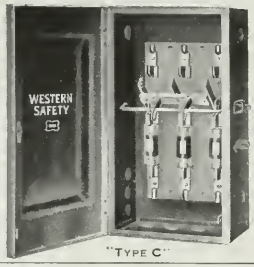

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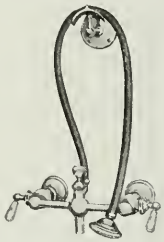

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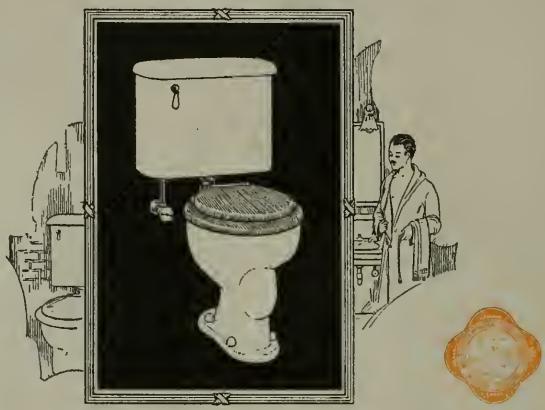

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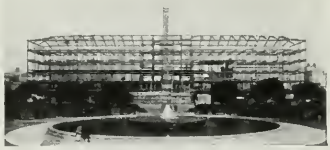

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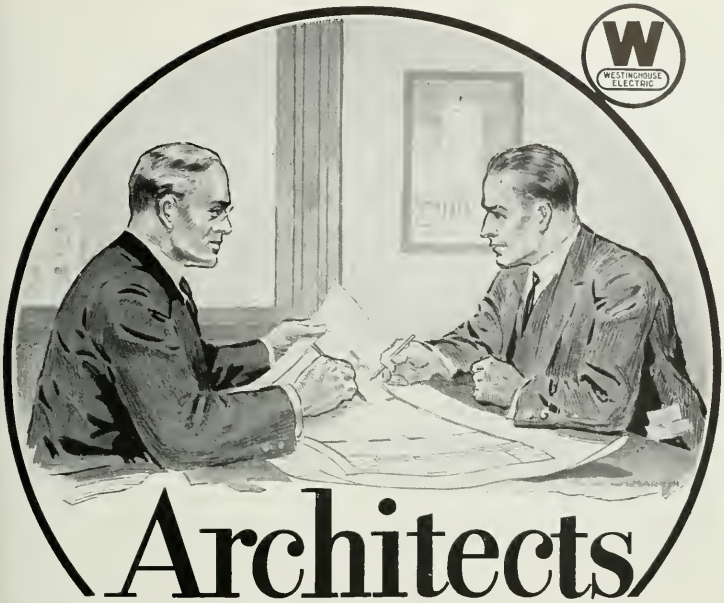

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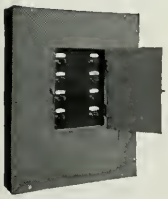

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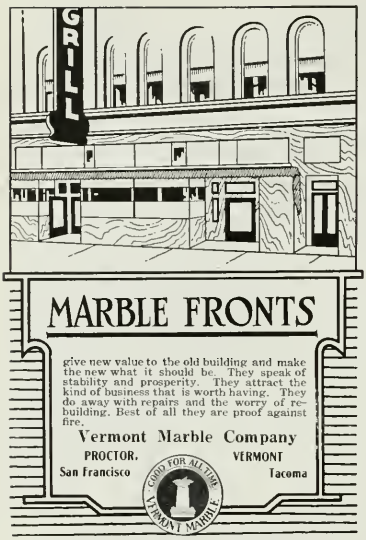

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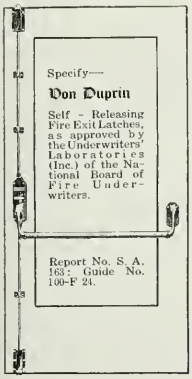
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NASON'S OPAQUE FLAT FINISH A VALUABLE OIL PAINT FOR WALLS, CEILINGS, ETC.
Made in California to stand Pacific Coast climatic conditions
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PORTLAND 151 Potrero Ave.—SAN FRANCISCO—436 Market St. SEATTLE

ARCHITECTS' SPECIFICATION INDEX—Continued

BUILDING MATERIALS, SUPPLIES, ETC.
The General Fireproofing Company, 20 Beale Street, San Francisco

BUILDING PAPER
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

BUILDING TILE (Burned Clay)
California Brick Co., 604 Mission St., San Francisco.

CABINET MAKERS
Home Manufacturing Company, 543 Brannan St., San Francisco.
Fink & Schindler Co., 218-13th St., San Francisco.
Mullen Manufacturing Company, 64 Rausch St., San Francisco.
Lannom Bros. Mfg. Co., 5th and Magnolia Sts., Oakland.
Pacific Mfg. Co., San Francisco, Los Angeles and Oakland.

CASEMENT WINDOW HARDWARE
Richards-Wilcox Mfg. Co., Aurora, Ill., and Underwood Bldg., San Francisco.

CEMENT
Atlas Portland Cement Co., agencies in all principal Coast cities.
Best Bros. Keene's Cement Co., John R. Steffens-Lomax Co., Agents, Monadnock Bldg., San Francisco.
Old Mission Portland Cement Co., Mills Bldg., San Francisco.
Medusa Stainless White Cement, plain and waterproofed, carried in stock and sold by leading building supply dealers in California, Oregon and Washington.
The Paraffine Companies, San Francisco, and principal Coast Cities.

CEMENT EXTERIOR WATERPROOF PAINT
Armorite, sold by W. P. Fuller & Co., all principal Coast cities.
Minwax Co., Inc., 22 Batery St., San Francisco and 653 S. Clarence St., Los Angeles.
The General Fireproofing Company, 20 Beale Street, San Francisco

CEMENT STUCCO
"California" sold by Atlas Mortar Company, Hobrook building, San Francisco.

CEMENT TESTS—CHEMICAL ENGINEERS
Robert W. Hunt & Co., 251 Kearny St., San Francisco.

CLAY PRODUCTS
California Brick Co. and Livermore Fire Brick Works, 604 Mission St., San Francisco.
Cannon & Co., Sacramento, Cal.
Gladding, McBean & Co., Crocker Bldg., San Francisco.
Los Angeles Pressed Brick Co., Frost Bldg., Los Angeles.
Tropico Potteries, Inc., Glendale, Cal.
United Materials Co., Sharon Bldg., San Francisco.

CLOCKS—ELECTRIC TIME
Pacific Electric Clock Co., 714 Wells-Fargo Bldg. San Francisco.
Standard Electric Time Co., 461 Market St., San Francisco.

COLD STORAGE PLANTS
Cyclops Iron Works, 837 Folsom St., San Francisco.

COMPOSITION FLOORS
"Linotol" plastic flooring, Hill, Hubbell & Co., 115 Davis St., San Francisco; 410 San Fernando Bldg., Los Angeles.
Western Asbestos Magnesia Company, 25 South Park, San Francisco.
Hoff Magnesite Co., San Francisco. Miller & Alf, 337 Monadnock Bldg., San Francisco, general agents.

CONCRETE BUILDING ACCESSORIES
John R. Steffens-Lomax Co., 951 Monadnock Bldg., San Francisco.

CONCRETE CONSTRUCTION
Thermo-Wall System, R. O. McCline, 1315 Fruitvale Ave., Oakland.

CONCRETE OR CEMENT HARDENER
Gunn, Carle & Co., Inc., 444 Market St., San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco

CONCRETE MIXERS
Foote and Jaeger mixers sold by Edward R. Bacon Co., 51 Minna St., San Francisco, also Los Angeles.

CONCRETE REINFORCEMENT
Edw. L. Soule Co., Rialto Bldg., San Francisco.
United States Steel Products Co., San Francisco, Los Angeles, Portland and Seattle.
Gunn, Carle & Co., Inc., 444 Market St., San Francisco.
Clinton Welded Wire Fabric, Wickwire Spencer Steel Corporation, 111 Townsend St., San Francisco.
Judson Mfg. Co., 817-821 Folsom St., San Francisco.
Pacific Coast Steel Company, Rialto Bldg., San Francisco.
Triangle Mesh Fabric. Sales agents, Pacific Materials Co., 525 Market St., San Francisco.
Truscon Steel Co., 527 Tenth St., San Francisco.
Badt-Falk Co., Call-Post Bldg., San Francisco.

CONDUITS
"Sherarduct," Garnett Young & Company, 612 Howard St., San Francisco.

CONTRACTORS, GENERAL
Barrett & Hilp, 918 Harrison St., San Francisco.
Herbert Beckwith, Everson Bldg., Oakland.
Larsen-Siegrist Co., Inc., 807 Claus Spreckels Bldg., San Francisco.
R. W. Littlefield, 357-12th St., Oakland.
K. E. Parker Co., Inc., Clunie Bldg., San Francisco.
Dinwiddie Construction Co., Crocker Bldg., San Francisco.
John M. Bartlett, 357 Twelfth St., Oakland.
Chas. Stockholm & Son, Monadnock Bldg., San Francisco.
Clinton Construction Company, 923 Folsom St., San Francisco.

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ELASTICA INTERIOR AND ELASTICA EXTERIOR
Standard Varnish Works
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HARRISON and EIGHTEENTH STREETS SAN FRANCISCO

ARCHITECTS' SPECIFICATION INDEX—Continued

Monson Bros., 251 Kearny St., San Francisco.
Geo. Wagner, 251 Kearny St., San Francisco.
T. B. Goodwin, 180 Jessie St., San Francisco.
McLeran & Co., R., Hearst Bldg., San Francisco.
Robert Trost, 26th and Howard Sts., San Francisco.
I. M. Sommer, 401 Balboa Bldg., San Francisco.
Jas. L. McLaughlin, 251 Kearny St., San Francisco.
Alfred H. Vogt, 185 Stevenson St., San Francisco.
Lange and Bergstrom, Sharon Bldg., San Francisco and Washington Bldg., Los Angeles.
David Nordstrom, 4146 Emerald Street, Oakland.
The Holton Company, 806 Syndicate Building, Oakland.

CONTRACTORS' EQUIPMENT
Edward R. Bacon Co., 51 Minna St., San Francisco, and Los Angeles.

CONVEYING MACHINERY
Messe & Gottfried, San Francisco, Los Angeles, Portland and Seattle.

CONVENIENCE OUTLETS
Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St.

CORK TILE
Van Fleet-Freear Co., Sharon Bldg., San Francisco.

CRUSHED ROCK
Coast Rock & Gravel Co., Call-Post Bldg., San Francisco.

CURTAINS—STEEL, ROLLING, FIREPROOF
J. G. Wilson Corp., 621 N. Broadway, Los Angeles.

DAMP-PROOFING AND WATERPROOFING
Armorite Damp Resisting Paint, made by W. P. Fuller & Co., San Francisco.
"Imperial," manufactured by Brooks & Doerr, Merchants National Bank Building, San Francisco.
Samuel Cabot Co., Boston; represented in San Francisco by Pacific Materials Co., Underwood Bldg., San Francisco.
"Pabco" Damp-Proofing Compound, sold by the Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.
Western Asbestos Magnesia Company, 25 South Park, San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco

DOOR HANGERS
McCabe Door Hanger Company, leading hardware stores.
Pitcher Hanger, sold by National Mill & Lumber Co., 326 Market St., San Francisco.
Stanley Works, New Britain, Conn., Monadnock Bldg., San Francisco.
Richards-Wilcox Mfg. Co., Underwood Bldg., San Francisco.

DOORS—VANISHING
W. L. Evans, 700 Block B., Washington, Ind.

DRAIN PIPE AND FITTINGS
"Corrosiron" Acid Proof, manufactured by Pacific Foundry Co., Harrison and 18th Sts., San Francisco.

DRINKING FOUNTAINS
Haws Sanitary Drinking Faucet Co., 1808 Harmon St., Berkeley, and C. F. Weber & Co., San Francisco and Los Angeles.
Crane Company, San Francisco, Oakland, and Los Angeles.
Pacific Porcelain Ware Co., 67 New Montgomery St., San Francisco.
Haines, Jones & Cadbury Co., 857 Folsom St., San Francisco.

DUMB WAITERS
Spencer Elevator Company, 166-7th St., San Francisco.
San Francisco Elevator Company, Inc., 860 Folsom St., San Francisco.

ELECTRICAL APPLIANCE SUPPLIES
Electric Appliance Company, 809 Mission St., San Francisco.

ELECTRICAL CONTRACTORS
Butte Electrical Equipment Company, 530 Folsom St., San Francisco.
Butte Electric & Manufacturing Co., 534 Folsom St., San Francisco.
Central Electric Company, 185 Stevenson St., San Francisco.
NePage, McKenny Co., 589 Howard St., San Francisco.
Newbery Electrical Co., 359 Sutter St., San Francisco.
Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.
Globe Electric Works, 1959 Mission St., San Francisco.
M. E. Ryan, Redwood City, and 520 Clunie Bldg., San Francisco.
H. S. Tittle, 766 Folsom St., San Francisco.
Brown-Langlais Electrical Construction Co., 313 Fifth Street, San Francisco.
A. F. Wells Company, 155 Second St., San Francisco.

ELEVATOR MOTORS AND CONTROL
Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., and First National Bank Bldg., San Francisco, Calif.

ELECTRIC PLATE WARMER
The Prometheus Electric Plate Warmer for residences, clubs, hotels, etc. Sold by M. E. Hammond, Pacific Bldg., San Francisco.

ELECTRICAL SUPPLIES AND EQUIPMENT
"H. & H. Switches," Garnett Young & Co., 612 Howard St., San Francisco.
Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St.
Drendell Electrical & Mfg. Co., 1345 Howard St., San Francisco.
Western Elertric Safety Mfg. Co., Inc., 247 Minna St., San Francisco.

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ARCHITECTS' SPECIFICATION INDEX—Continued

ELECTRIC TOWEL
The AIRDRY Electric Towel for clubs, office buildings, hotels, schools, etc., represented on Pacific Coast by Airdry Co., of California, 165 Montgomery St., San Francisco.

ELEVATORS
Otis Elevator Company, Stockton and North Point, San Francisco.
Spencer Elevator Company, 166-7th St., San Francisco.
San Francisco Elevator Co., 860 Folsom St., San Francisco.

ELEVATOR DOOR HARDWARE
Richards-Wilcox Mfg. Co., Underwood Bldg., San Francisco.

ENGINEERS—CONSULTING, ELECTRICAL, MECHANICAL
Chas. T. Phillips, 550 Montgomery St., San Francisco.
Hunter & Hudson, Rialto Bldg., San Francisco.
Ralph E. Dodge, 251 Kearny St., San Francisco.
Meese & Gottfried, San Francisco, Seattle, Portland, Los Angeles.

FANS AND BLOWERS
Tiltz Engineering and Equipment Co., 479 Monadnock Building, San Francisco.

FAIENCE TILE
Tropico Potteries, Inc., Glendale, Cal.

FELTS
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

FENCES—WIRE AND IRON
Standard Fence Company, 432 Bryant, San Francisco and 60th and Lowell Sts., Oakland.

FIRE BRICK, TILE & CLAY
Livermore Fire Brick Works, 604 Mission St., San Francisco.

FIRE EXIT LATCHES
Vonnegut Hardware Co., Indianapolis, Ind., represented in San Francisco by Abeel Jensen Co., Call Building.

FIRE ESCAPES
Michel & Pfeffer Iron Works, 1415 Harrison St., San Francisco.
Palm Iron & Bridge Works, Sacramento.
Western Iron Works, 141 Beale St., San Francisco.

FIRE-PROOF DOORS
Forderer Cornice Works, 269 Potrero Ave., San Francisco.
U. S. Metal Products Co., 330-10th St., San Francisco.
Kinnear Mfg. Co., represented in San Francisco by Pacific Materials Co., Underwood Bldg.
The J. G. Wilson Corporation, 621 North Broadway, Los Angeles.

FIRE SPRINKLERS—AUTOMATIC
Fire Protection Engineering Co., 67 Main St., San Francisco.
Grinnell Company of the Pacific, 453 Mission St., San Francisco.
Independent Automatic Sprinkler Co., 72 Natoma St., San Francisco.
Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.

FIRE RETARDING PAINT
The Paraffine Companies, Inc., 34 First St., San Francisco.
Fire Retardent Products Co., 2838 Hannah St., Oakland, Cal.

FIXTURES—BANK, OFFICE, STORE, ETC.
Home Manufacturing Company, 543 Brannan St., San Francisco.
The Fink & Schindler Co., 218-13th St., San Francisco.
Mullen Manufacturing Co., 64 Rausch St., San Francisco.
C. F. Weber & Co., 985 Market St., San Francisco, and 210 N. Main St., Los Angeles, Cal.

FLOOR CLIPS
Bull Dog Floor Clip Sales Co., 77 O'Farrell St., San Francisco, and 600 Metropolitan Bldg., Los Angeles.

FLOORS—TILE, CORK, ETC.
Mangrum & Otter, 827 Mission St., San Francisco.
Van Fleet-Freear Co., 61 New Montgomery St., San Francisco, and 420 S. Spring St., Los Angeles.

FLOOR VARNISH
Bass-Hueter and San Francisco Pioneer Varnish Works, 816 Mission St., San Francisco.
Fifteen for Floors, made by W. P. Fuller & Co., San Francisco.
Standard Varnish Works, Chicago, New York and San Francisco.
R. N. Nason & Co., San Francisco and Los Angeles.
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.
Murphy's Transparent Floor, Uhl Bros., San Francisco, Seattle, Portland, Oakland, Los Angeles.

FLOORS—HARDWOOD
Oak Flooring Manufacturers' Association of the United States, Ashland Block, Chicago, Ill.
Cadwallader, Gibson Co., 5th & Brannan St., San Francisco.
Parrott & Co., 320 California St., San Francisco.
Strable Hardwood Company, 511 First St., Oakland.
E. L. Bruce Co., Manufacturers, Memphis, Tenn.
White Bros., 5th and Brannan Sts., San Francisco.

FLOOR TREATMENT—HARDWOOD, COMPOSITION AND CONCRETE
Minwax Co., Inc., 22 Battery St., San Francisco and 653 S. Clarence St., Los Angeles.

FLOORS—MASTIC—FLOOR COVERING
Hill, Hubbell & Company, 115 Davis St., San Francisco.
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

FLUE LINING
California Brick Company, 604 Mission St., San Francisco.

FUEL OIL SYSTEMS
S. T. Johnson Co., 1337 Mission St., San Francisco.

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Heavy-Duty Pumps for Municipal and General Water Supply
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ARCHITECTS' SPECIFICATION INDEX—Continued

S. F. Bowser & Co. Inc., 612 Howard St., San Francisco.
Wayne Tank and Oil Co., 631 Howard St., San Francisco.

FURNACES—WARM AIR
Mangrum & Otter, 827 Mission St., San Francisco.
Montague Range and Furnace Co., 826 Mission St., San Francisco.

FURNITURE—OFFICE, SCHOOL, CHURCH, ETC.
Home Manufacturing Company, 543 Brannan St., San Francisco.
C. F. Weber & Co., 985 Market St., San Francisco.
F. W. Wentworth & Co., 539 Market St., San Francisco.
W. & J. Sloane, 216 Sutter St., San Francisco.
Western States Seating Co., 133 Kearny St., San Francisco.

FURRING TILE (Burned Clay)
California Brick Company, 604 Mission St., San Francisco.

GARAGE HARDWARE
The Stanley Works, New Britain, Conn., Coast sale offices, San Francisco, Los Angeles and Seattle, Wash.
Richards-Wilcox Mfg. Co., Aurora, Ill., and Underwood Bldg., San Francisco.

GLASS
American Window Glass Co., represented by L. H. Butcher Co., 862 Mission St., San Francisco.
Cobbledick-Kibbe Glass Co., 666 Howard St., San Francisco.
Fuller & Goepp, 32 Page St., San Francisco, and Jackson, at Eleventh St., Oakland.
W. P. Fuller & Company, all principal Coast cities.

GRADING, WRECKING, ETC.
Dolan Wrecking & Construction Co., 1607 Market St., San Francisco.

GRANITE
Raymond Granite Co., Potrero Ave., and Division St., San Francisco.

GRAVEL AND SAND
Coast Rock & Gravel Co., Call-Post Bldg., San Francisco.
Del Monte White Sand, sold by Del Monte Properties Co., Crocker Bldg., San Francisco.

GYMNASIUM EQUIPMENT—LOCKERS, ETC.
Ellery Arms Co., 583 Market St., San Francisco.
George Trask, Durand Steel Locker Co., 76 Sacramento St., San Francisco.

HARDWARE
Joost Bros., agents for Russell & Erwin Hardware, 1053 Market St., San Francisco.
The Stanley Works, New Britain, Conn.; Coast sales offices, San Francisco, Los Angeles, and Seattle, Wash.
Corbin hardware, sold by Palace Hardware Co., 581 Market St., San Francisco.
Richards-Wilcox Mfg. Co., Aurora, Ill., Ewing-Lewis Co., 626 Underwood Bldg., San Francisco.
Vonnegut hardware, sold by Abeel-Jensen Co. Call Bldg., San Francisco.

HEATING AND VENTILATING CONTRACTORS
Atlas Heating and Ventilating Company, Inc., Fourth and Freelon Sts., San Francisco.
Alex Coleman, 706 Ellis St., San Francisco.
Gilley-Schmid Company, 198 Otis St., San Francisco.
Hateley & Hateley, Mitau Bldg., Sacramento.
Mangrum & Otter, 827-831 Mission St., San Francisco.
Lawson & Drucker, 450 Hayes St., San Francisco.
Carl T. Doell, 467 21st St., Oakland.
Luppen, Hawley & Thing, 906 7th St., Sacramento.
William F. Wilson Co., 328 Mason St., San Francisco.
Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.
Scott Company, 243 Minna St., San Francisco.

HEATING & VENTILATING EQUIPMENT
W. S. Haines & Co.'s steam specialties. O. M. Simmons Company, 115 Mission St., San Francisco.
Hulting, Hurst & Hulting, representing Jas. P. Marsh Co., Monadnock Bldg., San Francisco.
Illinois Engineering Co., Pacific Bldg., San Francisco.
Tiltz Engineering & Equipment Co., 470 Monadnock Bldg., San Francisco.
Williams Radiator Company, 754 Monadnock Bldg., San Francisco.
W. H. Picard, 5656 College Ave., Oakland.

HEATERS, WATER-GAS, ELECTRIC, ETC.
Pittsburg Water Heater Company, 478 Sutter St., San Francisco.
Rudd Automatic Water Heater, sold by Rudd Heater Company, 431 Sutter St., San Francisco.

HEATERS, GAS GRATES, RADIATORS, ETC.
General Gas Light Company, 768 Mission St., San Francisco.
Ra-Do Fumeless Gas Radiators, Potter Radiator Corporation, 478 Sutter St., San Francisco
Humphrey Radiantfire, sold by Rudd Heater Company, 431 Sutter St., San Francisco.
Williams Radiator Company, "Gas Steam Radiators," 5 Monadnock Building, Arcade, San Francisco.
Hulbert Electric Steam Radiators and Hulbert Electric Water Heaters, William J. Schwerin, 1026 Market St., San Francisco.

HOLLOW BUILDING TILE (Burned Clay)
California Brick Company, 604 Mission St., San Francisco.

HOLLOW TILE BLOCKS
Cannon & Co., plant at Sacramento; 77 O'Farrell St., San Francisco.

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ARCHITECTS' SPECIFICATION INDEX—Continued

California Brick Company, 604 Mission St., San Francisco.
Gladding, McBean & Co., San Francisco, Los Angeles, Oakland and Sacramento.
Los Angeles Pressed Brick Co., Frost Bldg., Los Angeles.

HOSPITAL FIXTURES
Mott Company of California, 553 Mission St., San Francisco.

HOSPITAL SIGNAL SYSTEMS
Chicago Signal Co., represented by Garnett Young & Co., 612 Howard St., San Francisco.
Holtzer-Cabot Electric Company, San Francisco Branch, 408 Claus Spreckles Building.

ICE MAKING MACHINERY
Cyclops Iron Works, 837 Folsom St., San Francisco.

INDUSTRIAL LIGHTING EQUIPMENT
Westinghouse Electric and Mfg. Co., East Pittsburgh, Pa., and First National Bank Building, San Francisco.

INGOT IRON
"Armco" brand, manufactured by American Rolling Mill Company, Middletown, Ohio, and 10th and Bryant Sts., San Francisco.

INSPECTIONS AND TESTS
Robert W. Hunt & Co., 251 Kearny St., San Francisco.

INSULATION—CORK
Van Fleet-Freear Co., Sharon Bldg., San Francisco.

INSURANCE BROKERS
William Healey & Son, Crocker Bldg., San Francisco.

JAIL EQUIPMENT
Ralston Iron Works, 20th and Indiana Sts., San Francisco.

LAMP POSTS, ELECTROLIERS, ETC.
J. L. Mott Iron Works, 553 Mission St., San Francisco.

LANDSCAPE ARCHITECT
Emerson Knight, 704 Market St., San Francisco.

LANDSCAPE GARDENERS
MacRorie-McLaren Co., 514-516 Phelan Bldg., San Francisco.

LATHING AND PLASTERING
MacGruer & Simpson, 226 Tehama St., San Francisco.
A. Knowles, Call-Post Bldg., San Francisco.

LATHING MATERIAL—WIRE,ETC.
Pacific Materials Co., 525 Market St., San Francisco.
Truscon Steel Co., Tenth St., near Bryant, San Francisco.
Wickwire Spencer Steel Corporation, 111 Townsend St., San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco

LEATHER MATS
Leather Mat Mfg. Co., 340 Sansome St., San Francisco.
The Paraffine Companies, San Francisco and principal Coast cities.
The Paraffine Companies, San Francisco, and principal Coast cities.
The Paraffine Companies, San Francisco, and principal Coast cities.

LIGHT, HEAT AND POWER
Great Western Power Company, Stockton St., near Sutter, San Francisco.
Pacific Gas & Electric Co., Sutter St., San Francisco.

LIGHTING FIXTURES
Thomas Day Company, Mission, near Third St., San Francisco, and Oakland.
Electric Appliance Company, 809 Mission St., San Francisco.
Roberts Mfg. Co., 663 Misaion St., San Francisco.

LIME
Henry Cowell Lime & Cement Co., 2 Market St., San Francisco.

LINOLEUM
D. N. & E. Walter & Co., 562 Mission St., San Francisco.
The Paraffine Companies, factory in Oakland; office, 34 First St., near Market, San Francisco.
W. & J. Sloane, 216 Sutter St., San Francisco.

LUMBER
Hart-Wood Lumber Co., Fifth and Berry Sts., San Francisco.
Pacific Manufacturing Company, San Francisco, Oakland, Los Angeles and Santa Clara.
Pope & Talbot, foot of Third St., San Francisco.
Santa Fe Lumber Co., 16 California St., San Francisco.
Sunset Lumber Company, First and Oak Sts., Oakland.
White Bros., 5th and Brannan Sts., San Francisco.

MAIL CHUTES
American Mailing Device Corp., represented on Pacific Coast by Waterhouse-Wilcox Co., 523 Market St., San Francisco.

MANTELS—WOOD, TILE, ETC.
Mangrum & Otter, 827-831 Mission St., San Francisco.
Fink & Schindler, 218-12th St., San Francisco.

MANUAL TRAINING EQUIPMENT
Richards-Wilcox Mfg. Co., Ewing-Lewis Co., 626 Underwood Bldg., San Francisco.

MARBLE
American Marble and Mosaic Co., 25 Columbus Square, San Francisco.
Ray Cook Marble Company, foot of Powell St., Oakland.
Joseph Musto Sons, Keenan Co., 535 N. Point St., San Francisco.
Vermont Marble Co., Coast branches, San Francisco, Portland and Tacoma.
Tompkins-Kiel Marble Company, 505 Fifth Ave., New York; also Chicago, Philadelphia and San Francisco.
Columbia Marble Co., 413 Rialto Bldg., San Francisco.

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809 MISSION STREET, SAN FRANCISCO
Phone Sutter 4900

ARCHITECTS' SPECIFICATION INDEX—Continued

MATS, LEATHER
Leather Mat Manufacturing Co., 340 Sansome St., San Francisco.
METAL DOORS AND WINDOWS
Waterhouse-Wilcox Co., Inc., 523 Market St., San Francisco.
U. S. Metal Products Co., 330 Tenth St., San Francisco.
METAL FURNITURE
Forderer Cornice Works, 269 Potrero Ave., San Francisco.
METAL TOILET—PARTITIONS
John R. Steffens-Lomax Co., 951 Monadnock Bldg., San Francisco.
MILL WORK
Dudfield Lumber Co., Palo Alto, Cal.
Pacific Manufacturing Company, San Francisco, Los Angeles, Oakland and Santa Clara.
National Mill and Lumber Co., San Francisco and Oakland.
The Fink & Schindler Co., 218-13th St., San Francisco.
Lannom Bros. Mfg. Co., 5th and Magnolia Sts., Oakland.
NOTARY PUBLIC
William Healey & Son, 208 Crocker Bldg., San Francisco.
OIL BURNERS
Bunting Iron Works, 1215 First Nat. Bank Bldg., San Francisco.
Coen Co., Inc., 112 Market St., San Francisco
Fess System Co., 220 Natoma St., San Francisco.
S. T. Johnson Co., 1337 Mission St., San Francisco.
G. E. Witt Co., 862 Howard St., San Francisco.
W. S. Ray Mfg. Company, 29 Spear St., San Francisco, and 2206 San Pablo Ave., Oakland.
Rotary Oil Burner Company, 159 Twelfth St., Oakland.
OIL STORAGE AND DISTRIBUTING STATIONS
S. F. Bowser & Co., Inc., 612 Howard St., San Francisco.
S. T. Johnson Co., 1337 Mission St., San Francisco.
Wayne Oil Tank & Pump Co., 631 Howard St., San Francisco; 830 S. Los Angeles St., Los Angeles.
ORNAMENTAL IRON AND BRONZE
California Artistic Metal and Wire Co., 349 Seventh St., San Francisco.
Fedecal Ornamental Iron and Bronze Co., 16th St., and San Bruno Ave., San Francisco.
Michel & Pfeffer Iron Works, 1415 Harrison St., San Francisco.
Palm Iron & Bridge Works, Sacramento.
C. J. Hillard Company, Inc., 19th and Minnesota Sts., San Francisco.
Schrader Iron Works, Inc., 1247 Harrison St., San Francisco.
OVERHEAD CARRYING SYSTEMS
Richards-Wilcox Mfg. Co., Aurora, Ill., and Underwood Bldg., San Francisco.
PANIC DOORS
Vonnegut hardware, sold by Abeel-Jensen Co. Call Bldg., San Francisco.
PAINT FOR STEEL STRUCTURES, BRIDGES, ETC.
The Paraffine Companies, Inc., 34 First St., San Francisco.
Premier Graphite Paint and Pioneer Brand Red Lead, made by W. P. Fuller & Co., San Francisco.
Hill, Hubbell & Company, 115 Davis St., San Francisco.
Nitrose Paint, Clifford W. L. Day, Pacific Coast representative, 324 Monadnock Bldg., San Francisco.
PAINTING, TINTING, ETC.
I. R. Kissel, 1747 Sacramento St., San Francisco.
D. Zelinsky & Sons, San Francisco and Los Angeles.
The Tormey Co., 681 Geary St., San Francisco.
A. Quandt & Son, 374 Guerrero St., San Francisco.
PAINTS, OILS, ETC.
Magner Bros., 414-424 Ninth St., San Francisco.
Bass-Hueter Paint Co., Mission, near Fourth St., San Francisco and all principal Coast cities.
R. N. Nason & Company, San Francisco, Los Angeles, Portland and Seattle.
W. P. Fuller & Co., all principal Coast cities.
"Satinette," Standard Varnish Works, 55 Stevenson St., San Francisco.
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.
Fire Retardent Products Co., 2838 Hannah St., Oakland, Cal.
PARTITIONS—FOLDING AND ROLLING
J. G. Wilson Corporation, 621 N. Broadway, Los Angeles; Waterhouse-Wilcox Co., Underwood Bldg., San Farnciaco.
PARTITION TILE (Burned Clay)
California Brick Company, 604 Mission St., San Francisco.
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J. L. Mott Iron Works, D. H. Gulick, selling agent, 553 Mission St., San Francisco.
Pacific Sanitary Manufacturing Co., 67 New Montgomery St., San Francisco.
West Coast Porcelain Manufacturers, Oceanic Bldg., San Francisco.
W. H. Picard, 5656 College Ave., Oakland.

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Pelton Waterwheel Co., 2022 Harrison St., San Francisco.
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S. T. Johnson Co., 1337 Mission St., San Francisco.
Wayne Tank & Pump Co., 631 Howard St., San Francisco; 830 S. Los Angeles St., Los Angeles.
Byron Jackson Iron Works, 55 New Montgomery St., San Francisco.
Tokheim Oil Tank & Pump Company, 806 Sharon Building, San Francisco.

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Pacific Coast Steel Co., Rialto Bldg., San Francisco.
Truscon Steel Co., 527-10th St., San Francisco.

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U. S. Steel Products Co., Rialto Bldg., San Francisco.
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Schrader Iron Works, Inc., 1247 Harrison St., San Francisco.
Western Iron Works, 141 Beale St., San Francisco.

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"Satinette," Standard Varnish Works, 55 Stevenson St., San Francisco.
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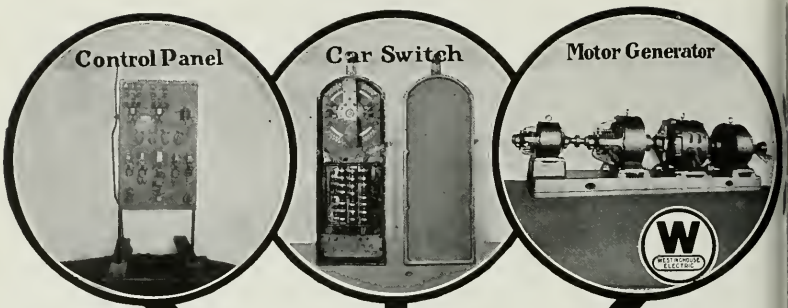

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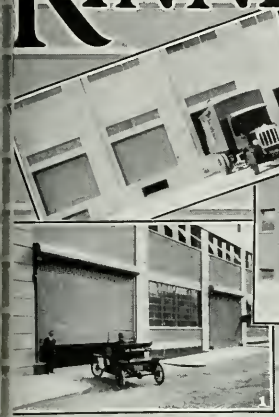

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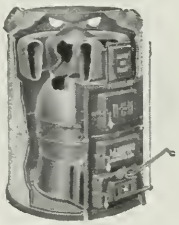

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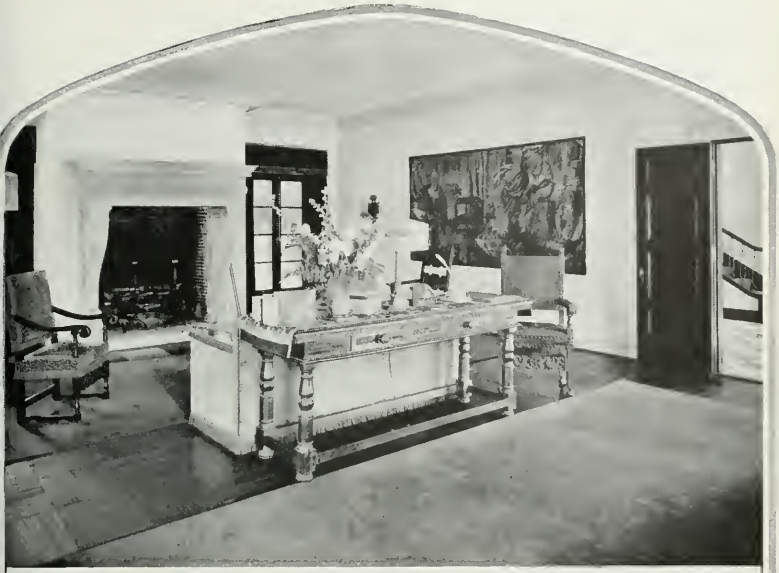

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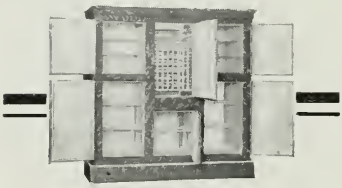

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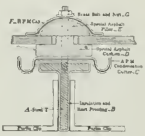

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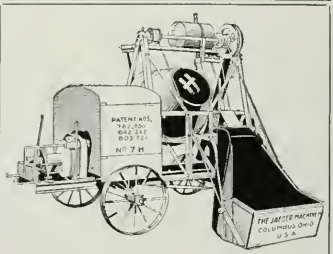

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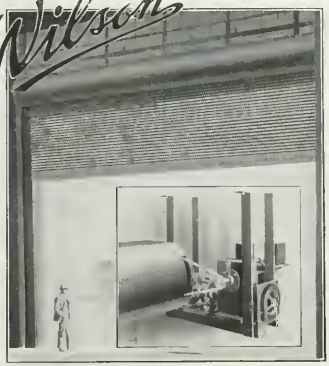

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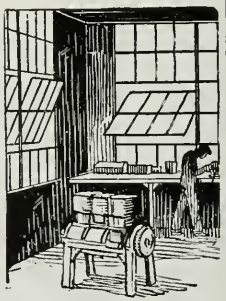

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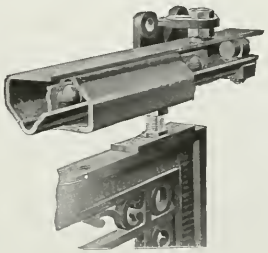

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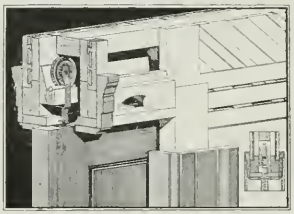

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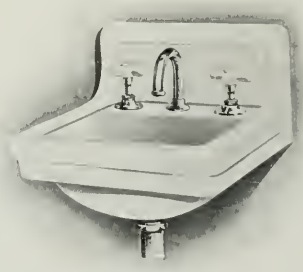

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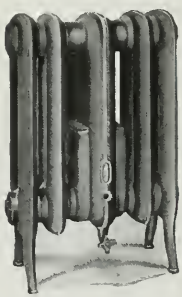

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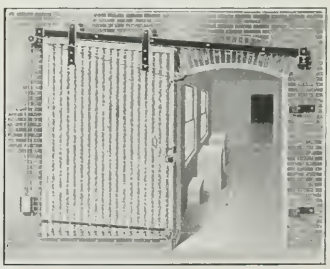

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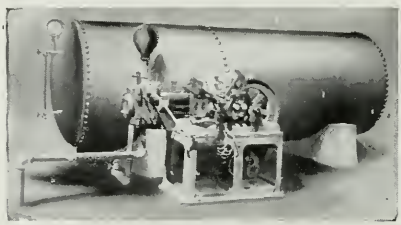

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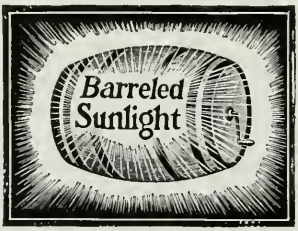

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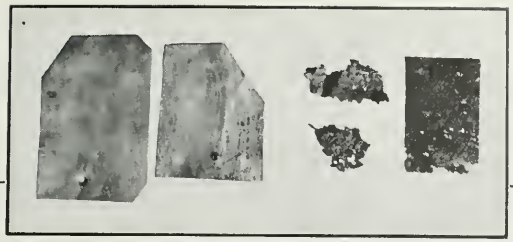

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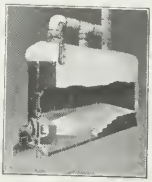
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VOL. LXXII
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Requirements of a Small Bank Building

By F. R. KERMAN*

THE difficulties that surround the man who attempts to "serve two masters" are as nothing compared with those encountered by the banker who sets out to erect a new place of business.

In addition to the requirements and limitations prescribed by the architect, building contractor and material men, he is hedged in with the necessity for providing in a suitable way for the bank's customers, its employees and official staff. At the same time he cannot forget his responsibility to the Board of Directors and stockholders, for, after all, they are going to ask whether or not the institution has secured value received for the amount invested.

The discouraging feature of the whole undertaking is that each point of view is entirely different. At no point do any of the interested groups meet on common ground. The architect and contractor, before the job is finished, look to the banker as though they were sprouting horns, cloven hoofs and spiked tails. The requirements for ample lobby space and accessory conveniences necessary to proper customer service bid fair to drive the bookeeping and mechanical departments to the roof. The desirability of furnishing the employees with sufficient working space seems destined to crowd everything else out of the bank. Attempts to meet the individual suggestions of the bank's officers lead into a perplexing labyrinth of countless readjustments, while the demands of the directors and stockholders for rigid economy add more fuel to the fire of growing confusion. At best, the picture is none too inviting. And unless it is studied with greatest care many of the fine points will never be apparent. Especially is it important that the architect who undertakes the construction of a new bank building familiarize himself with the various aspects of the picture, when viewed from different angles. It may not be amiss, therefore, to point out, at least in part, some of the considerations which should be borne in mind.

* With Bank of Italy, San Francisco.

ELEVATION AND INTERIOR, SUNSET BRANCH, BANK OF ITALY
Shea & Shea, Architects

POLK-VAN NESS BRANCH, BANK OF ITALY, SAN FRANCISCO
Shea & Shea, Architects

SAN PABLO AVENUE BRANCH, OAKLAND, BANK OF ITALY
Edward T. Foulkes, Architect

MELROSE BRANCH, OAKLAND, BANK OF ITALY
Edward T. Foulkes, Architect

First of all, if the architect is conscientious, he satisfies himself that in its broad aspect the building is architecturally a credit to the community.

That is about as far as he can go in the matter of gratifying his personal desires. If he succeeds in holding aloft the banner of better architecture, with respect to that one point, he has done well. For, after all, a bank is a quasi-public-service institution, and the details of its construction must be planned accordingly.

FEDERAL LAND BANK, BERKELEY
James W. Plachek, Architect

The requirements of the depositors are naturally paramount considerations. Ample lobby space must be provided for every reasonable comfort and convenience of the bank's customers. This includes the location of entrances, the allocation of floor space, arrangement of counters, lighting, and special facilities such as rest rooms or places for public meeting. Without customers, the bank, of course, could not expect to succeed, and therefore proper consideration must be given to convenience.

In the interests of good service, it is essential that the employees

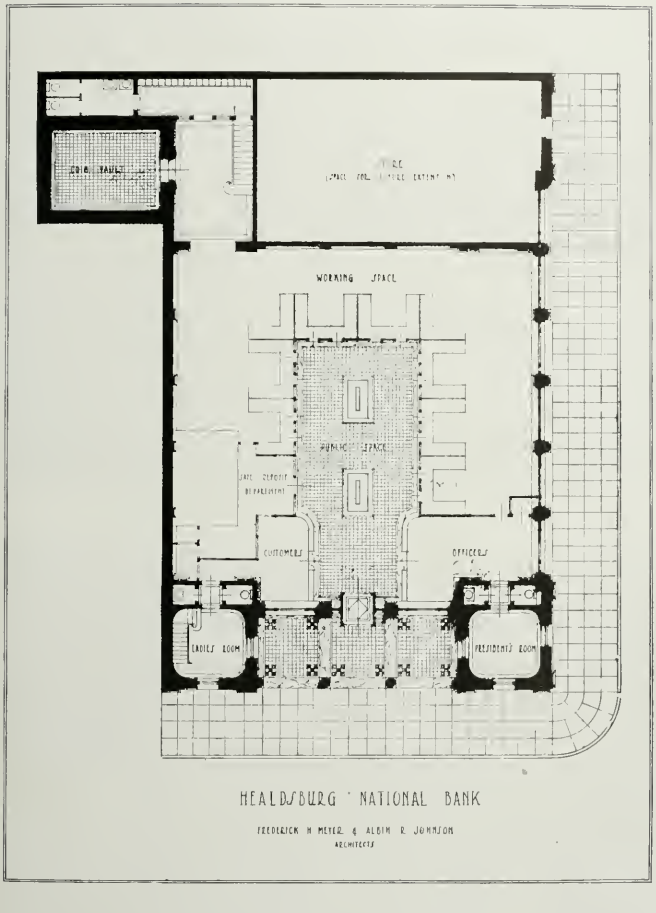
of the bank be accorded pleasant working conditions. This presupposes proper lighting, ventilation, correlation of departments, and suitable equipment. Lighting involves artificial illumination as well as sunlight. The position of the windows, therefore, will be determined in a large measure on the basis of efficiency and employee comfort. The location of the various departments in the bank will, in a measure, fix the layout of floor space. The architect must consider the size of the various departments of the bank and just where they are to be placed when he

PARK PRESIDIO BRANCH, SAN FRANCISCO, BANK OF ITALY
Shea & Shea, Architects

prepares the drawings. This problem is interwoven with that of equipment, because the special appliances now used in every bank, for certain types of work, will govern the interior arrangement. At the same time, care must be taken to permit the extension or addition of equipment without seriously affecting the operation of the bank. This applies particularly to telephone installation and electric wiring.

The wishes of the various officials of the bank, insofar as they will fit into the general scheme, should have due consideration. These officers are the ones who are most familiar with the functions of the bank, and

HEALDSBURG NATIONAL BANK, HEALDSBURG, CAL.
Meyer & Johnson, Architects



HEALDSBURG NATIONAL BANK

FREDERICK H MEYER & ALBIN R JOHNSON
ARCHITECTS

they can and will contribute many suggestions that will help the architect in doing a better job. Frequently valuable contributions can be obtained from the bank's officer personnel. Last, but not least, the architect cannot fail to remember that the great body of stockholders has a deep interest in the bank's structure. A great source of potential business is contained in the group of stockholders, and if they are pleased with the building and satisfied with the results of the architect's work, they are not apt to forget him when future building may be contemplated.

INTERIOR, HEALDSBURG NATIONAL BANK, HEALDSBURG, CAL.
Meyer & Johnson, Architects

INTERIOR, PARK PRESIDIO BRANCH, BANK OF ITALY
Shea & Shea, Architects

The Economical House and the Architect

By WALTER WEBBER, Architect, in California Southland

PROBABLY ninety-nine people out of a hundred who for the first time are considering the problem of building a home of economical proportions,—say in the five to ten thousand dollar class,—ask themselves if it is worth while to pay three hundred to one thousand dollars for a set of plans when an ordinary plan can be obtained for fifty dollars, or even for nothing. And almost universally the decision is, that it is not worth while. From the point of view of the prospective home owner the decision is just, because he has no conception of what he would receive for his three to ten hundred dollars beyond a set of blue prints which are absolutely useless after the building is completed and so far as he can see no better than the plans he has examined so carefully in the various household magazines for the past six months. There are, as every one knows, builders of such marked ability that they can build a house from a magazine cut, making the few slight changes which one always requires, as he goes along. He can make the plans himself just as the owner wants them and the charge for this service is absolutely nothing; or if one is a little cautious as regards his hard earned dollars, the plans may be taken to some other builder for a check figure. In this case one pays twenty-five or fifty dollars to the original plan builder. All very plain and simple, and the enormous fee of the architect whose business it is to make plans, is saved. Perfectly good and logical reasoning, as far as it goes; and so simple that anyone can understand it. It must in fact be the correct way, otherwise so many bright and intelligent people would not be doing it. One has but to look around here in Southern California to see the marvellous results of the plan builder's designs.

Perhaps you who only build one house in a life time and have followed a method similar to that outlined, have had good luck and moved in, feeling much elated over your success in the building venture. But surely you have heard your neighbor tell woeful tales of what he didn't get and what he thought he paid for. Perhaps you have not fallen into the hands of one of the many unscrupulous builders of this type and have obtained almost what you paid for, but had you any assurance in the beginning that the specification was what it looked to be, a description of the grade and quality of material as represented by the price? Had you any assurance in fact that everything represented by the price was ultimately delivered? Perhaps, as I say, you had good luck but there are hundreds of people that have had bad luck. The proof of this is that the architect is called upon many times during the year to assist some trusting owner who, with the idea of saving a few hundred dollars, has waded into the building game beyond his depth and squandered thousands. As an example, only last month a lady came to me with her particular tale of woe. She had paid fifty dollars for a set of plans and specifications and obtained a price for the building from the man who made the plans and wrote the specifications. She then went to another builder who after revising the specifications, was able to give her a lower price and with this man she signed a contract. This contract he wrote himself stipulating terms of payment. He also gave her a bond, which her lawyer told her was absolute protection. Looked all straight and above board, but within a week after the building was started the builder was demanding something over a third of the contract price when he had probably less than two per cent of the total work completed. She could not understand why she must pay so much money for so little

that looked like a house. Now the bond gauranteed that she would get two thousand dollars worth of building and that there would be no liens, but she hoped to get a nine thousand dollar building. The specifications which the builder revised himself had nothing to do with the bond, she had copies of neither specifications nor contract, and the lawyer told her she was amply protected. As a matter of fact the builder, doing business on her capital, can deliver any kind of job he chooses and she gets only that which out of the kindness of his heart and the possibly prickly conscience he doesn't care for himself. The bond was simply salesmanship, a talking point. It sounds well, but unless there is something worth bonding it is just so much waste paper.

So much for that side of the game. But what does the architect really do for all the money he charges? Why employ an architect? If one gets an honest builder one will not get cheated and are there not dishonest architects as well as builders? Certainly! My first advice to the prospective home builder would be to get an architect and the second piece of advice would be to pick an architect with discretion.

Setting aside the asthetic qualities of the work of the architect, I am dealing now with the purely economic reasons for his employment on the residence of ten thousand dollars and less. First, we must assume that the man who desires a home of his own doesn't care to live in a flat, tenement house, lodging house or hotel, and desiring a home he will take a certain amount of pride in it, and like a new suit will get joy out of a good fit. The architect fits the house to the needs of the family, then he studies the location and environment. The architect fits the building to its surroundings. Next in importance is orientation. The architect fits the building, the family, the garden and the grounds to the benefit of the sun and rain—all points of which the plan builder knows nothing. Then after getting a general scheme the architect squeezes out all the waste space, that is, the square foot area that serves no useful purpose, accumulating this space in rooms and closets. But all this deals merely with making the plans.

After the plan is determined, the fittings are to be studied, locating the furniture, light outlets, heat registers, and the thousand and one minor details that count for economy of installation and operation. And yet with all their multiplicity of detail, the making of the plans is in reality a small part of the service rendered by the architect. The specification next is to be considered. The market affords many grades of the same material, the designation of which is often misleading; for instance No. 1 applied to certain materials doesn't mean the best, but often only a second or even a third grade. The word "select" applied to flooring means second grade, the first being graded "clear" or "clear white," and so on throughout all the items entering into the construction of the building. The architect himself does not always demand the best. Most owners have a price in mind often incompatible with the area required. This is one of the most important services rendered; eliminating and adjusting until price and space are equivalent as regards each individual problem.

Knowing the contracting field, segregating the reliable from the unreliable, getting bids that can be depended upon, writing and filing contracts, attending to the proper bonding and throughout the whole process keeping the interests of the owner always uppermost—in these things the owner's interests and those of the architect are identical. He is as anxious to deliver a perfect job as the owner is anxious to receive one.

Finally comes the superintending, which is not only watching the progress of the work and seeing that the quality of material is what you pay for but adjusting additions and changes, keeping your accounts, issuing certificates for the payments of all moneys and keeping you out of trouble generally.

It is not possible within the scope of one short article to explain minutely all the pitfalls confronting the home builder but my only aim here is the hope that you who are about to build will get sufficient inspiration, to continue to think even after you have cut the plan you like from some magazine.

When you can realize all the architect delivers in addition to plans and elevations and when you can comprehend what that service will mean in your own problem, then you will take advantage of your God-given intelligence, and remember that tomorrow generally arrives safely and that the dotted line will not fade.

* * *

A Cure for Clients Who Talk Hard Times

ARCHITECTS who have any pessimistic clients should submit to them the following facts, and then take their commission to build for them:

The United States is the richest country in the world.

The bank deposits in the United States exceed by billions the combined bank deposits of the whole world outside of this country.

Our national wealth at the time of the Civil War was about $7,000,000,000; at present it is $225,000,000,000.

In a single year we produce by manufacture and agriculture more than the entire national wealth of France.

England's wealth is only $80,000,000,000 as against our $225,000,000,000.

Of all the wheat of the world we produce 22 per cent.

Of all the oats of the world, 35 per cent.

Of all the cotton, 60 per cent.

Of all the corn, 80 per cent.

Of all the cattle, 27 per cent.

Of all the hogs, 40 per cent.

Of all the world's dairy products, 25 per cent.

One-half of the world's pig iron is taken from the earth in the United States.

Fifty per cent of the world's copper is mined here.

And 60 per cent of the world's petroleum.

Besides this we produce 25 per cent of the total production of woolens of the earth.

Twenty-five per cent of the linens.

Twenty-five per cent of the cotton cloth.

Forty-five per cent of the paper.

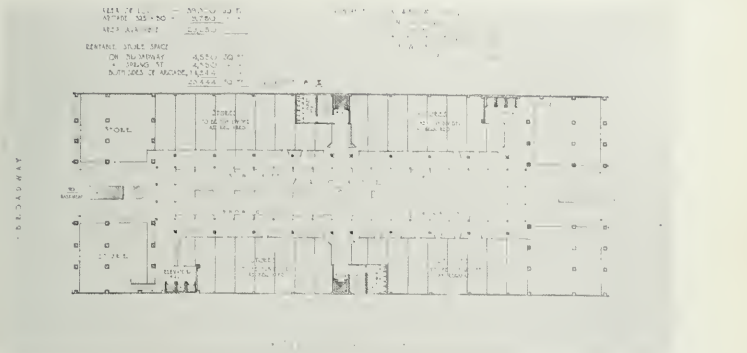
Twenty-five per cent of the glass

Thirty-six per cent of the shoes.

And 50 per cent of the steel products.

And we do this, having but 5 per cent or one-twentieth of the world's population.—Exchange.

ELEVATION, OFFICE BUILDING AND ARCADE, LOS ANGELES. AWARDED FIRST PRIZE
MACDONALD & COUCHOT, ARCHITECTS



FIRST FLOOR PLAN, OFFICE BUILDING AND ARCADE, LOS ANGELES
MacDonald & Couchot, Architects

Competition for an Office Building and Arcade

THE owners of a proposed twelve-story office building and arcade to be erected in Los Angeles recently called for competitive plans from six San Francisco and Los Angeles architectural firms. A programme was arranged with the approval of the San Francisco and Southern California Chapters of the American Institute of Architects. The winner was to receive $60,000 for his plans, while each of the other five competitors was to be paid $250 to cover a small portion of the expense entailed. Mr. Sylvain Schnaittacher was the professional advisor, and the jury of award was composed of Architects Arthur Brown, Jr., and Lewis P. Hobart, both of San Francisco; Mr. Allen MacDonald, Mr. Felix Kahn, Mr. A. C. Blumenthal, and Mr. Laz Lansburgh, the four last named having ownership in the project, and Mr. E. L. Bowes, of F. W. Straus & Company, who are to finance the building. The competitors were Messrs. MacDonald & Couchot, San Francisco (who were awarded first prize), Messrs. Weeks & Day, Mr. G. Albert Lansburgh, Mr. S. Heiman, all of San Francisco; and Messrs. Curlett & Beelman and Swasey & McAfee of Los Angeles.

The report of the jury in the competition was as follows:

Gentlemen:

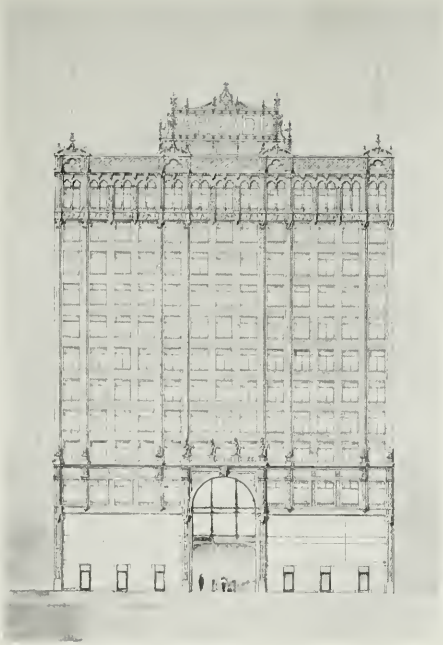
Herewith follows the report of the Jury of Award for the competition for an arcade and office building in Mercantile place, Los Angeles:

Design No. 6, submitted by Kenneth MacDonald and Maurice C. Couchot, was selected as the winning design for its flexibility in plan, breadth of scheme and character of the arcade. The authors of the other designs submitted are commended for the study of the problem as indicated by the various solutions submitted.

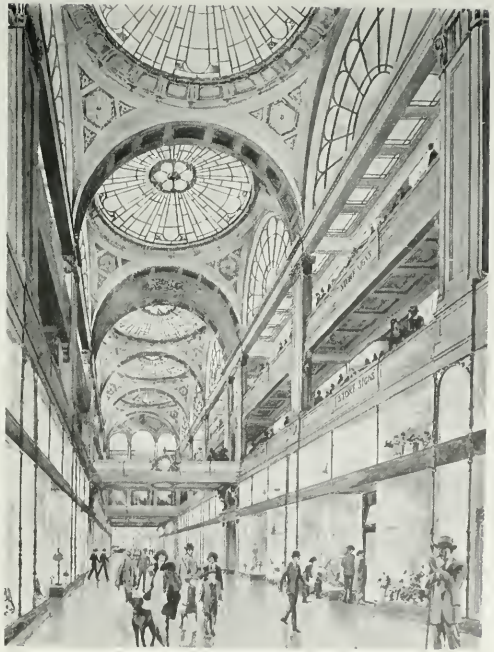
The idea of developing Merchant place into a splendid commercial center is not a new one. It just happens that a certain coterie of men were able to see the posibilities of this development when they were pointed out to them, and were willing to back their convictions by a substantial investment.

The plans as selected represent without question the most comprehensive development of the arcade shopping center which can be realized.

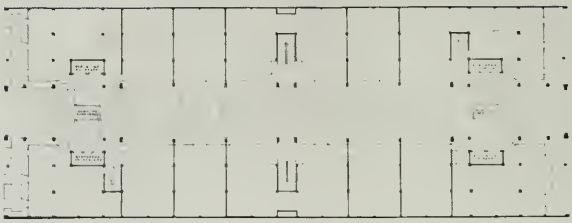
INTERIOR ARCADE LOS ANGELES
MACDONALD & COUCHOT, ARCHITECTS



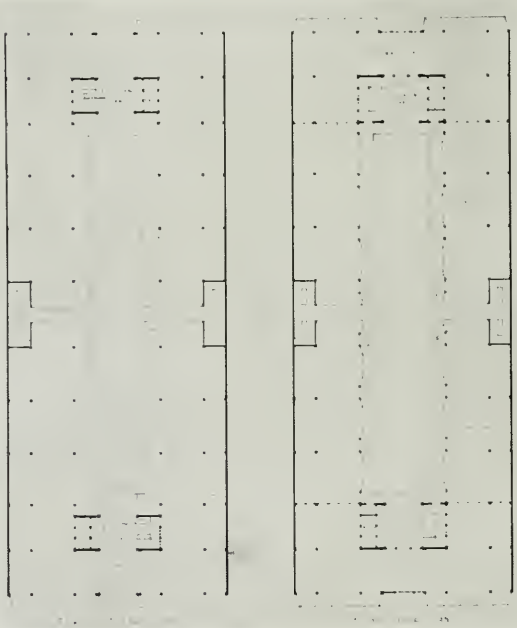
ELEVATION, OFFICE BUILDING, LOS ANGELES
G. Albert Lansburgh, Architect



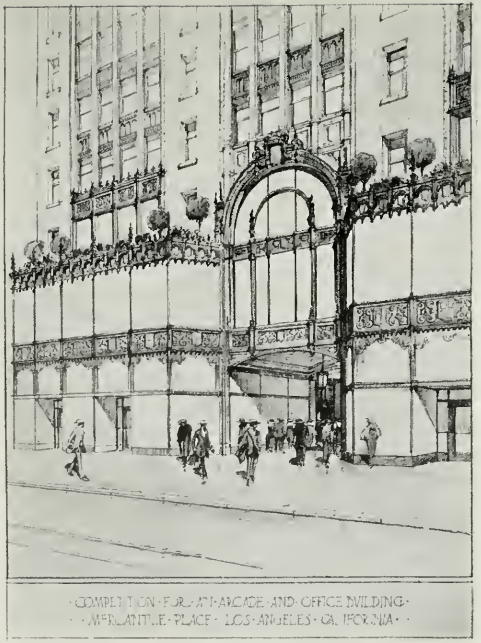
INTERIOR, ARCADE, LOS ANGELES
G. Albert Lansburgh, Architect



FIRST FLOOR PLAN, ARCADE, LOS ANGELES
G. Albert Lansburgh, Architect



FIRST AND SECOND FLOOR PLANS, ARCADE, LOS ANGELES
Weeks & Day, Architects



DETAIL ELEVATION, OFFICE BUILDING, LOS ANGELES
Weeks & Day, Architects

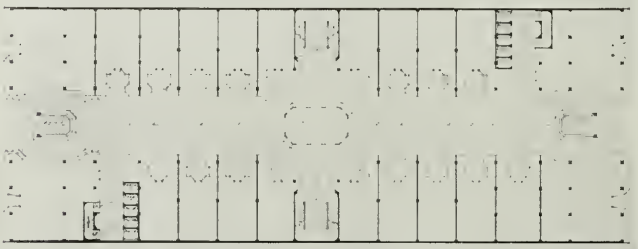
INTERIOR, ARCADE, LOS ANGELES
Weeks & Day, Architects

The high rentals obtainable for show window space made an all-glass first story necessary.

The architects have devised a type of construction which will set well back of the show window fronts, and which will carry the twelve-story office buildings. The latter are duplicates in design. The one on Spring street will cater to financial agents, bond brokers, etc.; while the offices in the Broadway street building will be used by various manufacturers' agents and physicians.

The arcade proper is designed in units of 18 feet, which permits the proper sub-division into stores in the most economical way, allowing the correct width of counters, salesmen's space and wall shelving. The stores have been set back under the inner arcade seven feet. The columns of the inner arcade are twelve feet apart and only about eight inches in diameter.

The architectural effect, as well as the color tones, will be carried out in a carefully designed and brilliantly-colored scheme, reviving the cheerful and inspiring effect of the Spanish Renaissance.



FIRST FLOOR PLAN, ARCADE, LOS ANGELES
S. Heiman, Architect

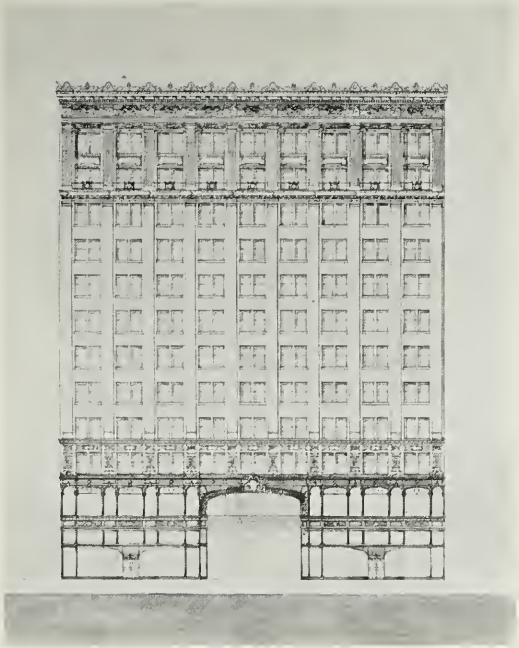
The design of the inner arcade will prevent the disturbing effect of the reflection of the sidewalk in the show windows. The inner arcade will be surmounted by a smaller arcade with iron balconies, arcade show windows, with all the attractiveness of the main arcade repeated. It is intended that these stores will be rented to those specializing in objects of art, such as tapestries, antique furniture, etc.

The top floors of the arcade will be divided into commodious light studios which can be used for shops and show windows as well.

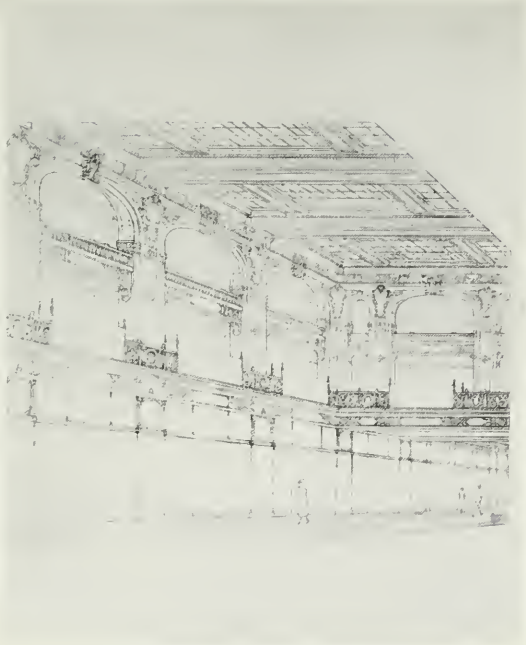
Probably one of the most attractive features will be the cooling system. It is intended that cool air be introduced into the arcade directly under the skylight. This cool air will render the entire arcade street 15 to 30 degrees cooler than either Spring street or Broadway.

The floor of the arcade will be covered with some material which will be pleasant to walk upon. The floors of the stores and that of the arcade will be on a level.

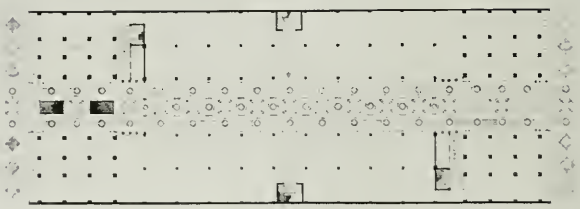
The materials for the arcade will be ornamental terra cotta and wrought iron, done in polychrome. Separating the street from the sky will be an immense glass roof 40 by 225 feet.



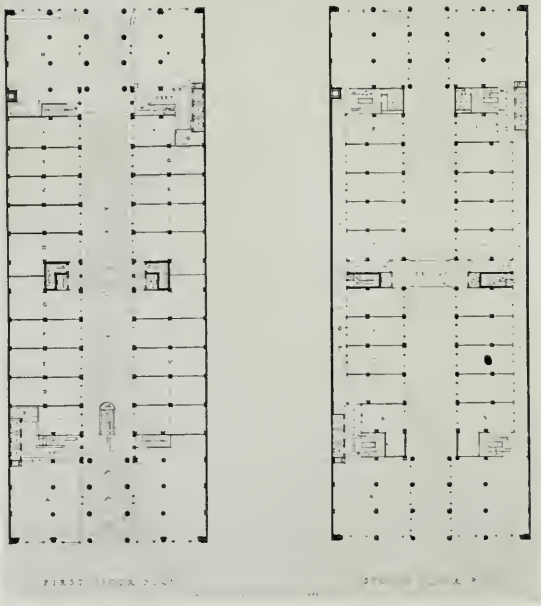
ELEVATION, OFFICE BUILDING, LOS ANGELES
S. Heiman, Architect



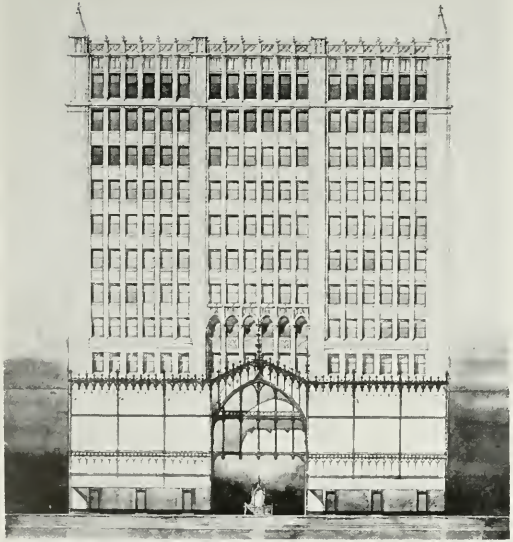
INTERIOR, ARCADE, LOS ANGELES
S. Heiman, Architect



FIRST FLOOR PLAN, ARCADE, LOS ANGELES
Swasey & McAfee, Architects

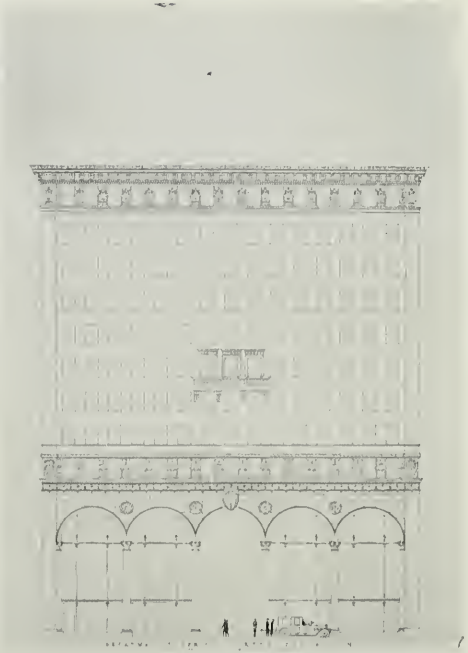


FIRST AND SECOND FLOOR PLANS, ARCADE, LOS ANGELES
Curlett & Beelman, Architects



ELEVATION, OFFICE BUILDING, LOS ANGELES
Swasey & McAfee, Architects

INTERIOR, ARCADE, LOS ANGELES
Swasey & McAfee, Architects



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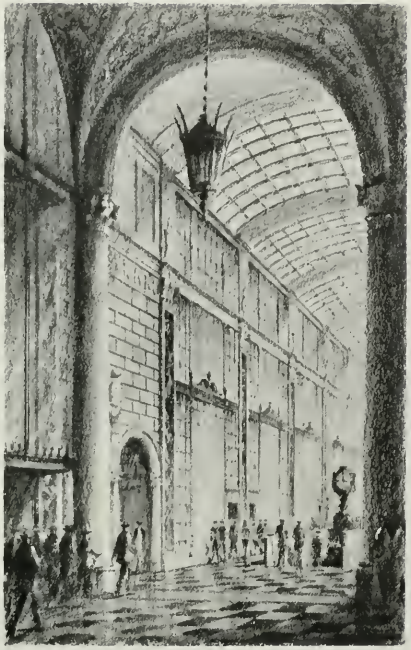
Curlett & Beelman, Architects



INTERIOR, OFFICE BUILDING, LOS ANGELES
Curlett & Beelman, Architects

War Memorial for the Territory of Hawaii, Honolulu

By LEWIS P. HOBART, Architect

THE Territory of Hawaii, desiring a War Memorial for the American Legion, asked in their competition program for a Natatorium not less than 100 meters long, with dressing rooms for both men and women, to be built over a channel already dredged in the coral formation at Waikiki beach, opposite Kapiolani park, and also for a Temple of Music in the park adjacent to the Natatorium.

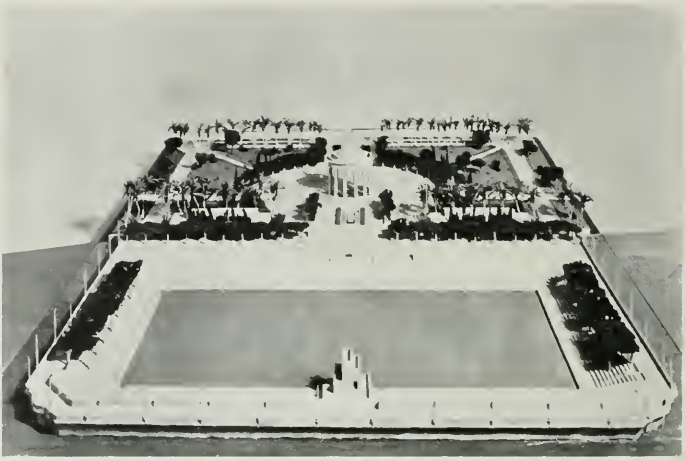
A portion of this park, about 300 feet wide, is on the beach and separated from the remainder of the park by a broad boulevard running from Honolulu to Diamond Head. On this narrow strip to the north of the site are the public baths and Aquarium. These are about 1000 feet from the site. On the other side of the boulevard there is a polo field, tennis courts, and a zoological garden.

The architectural solution of the problem was to tie the various elements together and keep the Temple of Music in composition with the Natatorium, also in harmony with climatic conditions where shade is extremely desirable.

The site is a most beautiful one—looking towards the park and the green mountains in one direction, and the deep blue of the tropical waters with white clouds along the horizon, in the other direction. The color is wonderful in all directions.

The Natatorium is 330 feet long and 150 feet wide, surrounded by tiers of seats accommodating 6500, and is of concrete construction. There are starting platforms 14 feet wide at either end. The diving tower is also of concrete, the height being determined by the rules of the Athletic Association. The promenade is protected from the sea spray by an over-hung outer wall below the parapet.

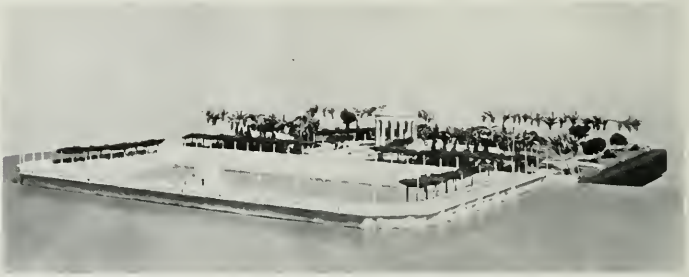
AEROPLANE VIEW, WAR MEMORIAL, TERRITORY OF HAWAII
Lewis P. Hobart, Architect



WAR MEMORIAL, TERRITORY OF HAWAII. VIEW FROM OCEAN
Lewis P. Hobart, Architect

The sea water in the pool is kept constantly fresh by the flow through openings at either end, which is checked so there will be no current. There is a rise and fall of the tide at Honolulu of only 22 inches. In building the pool over the channel we have two advantages—the extra depth of water in the pool and the shallow water on which to build our foundation for the seating.

In further developing the scheme with the authorities at Honolulu, it was decided to make the Natatorium for Olympic games only. These professional meets will be held only at night, and at such times the pool will be illuminated by lights strung across the pool from cables on removable poles. When there is no professional swimming the general public will be allowed to use the pool, there being a public bath with dressing rooms adjacent.



WAR MEMORIAL, TERRITORY OF HAWAII. VIEW FROM OCEAN
Lewis P. Hobart, Architect

The bath houses are developed as open sheds behind high enclosing walls, with small gardens inside these walls. The men's bath house will accommodate 150 men and contains showers and toilets, with alcoves for the various swimming clubs. The women's bath house contains the same accommodations for 50 women, also storage space for electrical equipment, a small office, and an electric control room. There are no lockers; all clothes will be hung from hooks on the wall.

The Temple of Music is of concrete construction, oval in plan, 40 feet in diameter on the main axis and 50 feet the other dimension. The total height is 70 feet.

The Memorial Temple will be used as a band stand. The finial is of bronze in the form of a pineapple, with the upper portion of the roof in tile. There are medallions on the parapet—the two on the main axis being the coat of arms of Hawaii, the two on the secondary axis, the coat of arms of the United States. The ceiling is a hung ceiling of hard plaster, slightly convex to avoid the sound being caught in the dome, and is covered with canvas which is decorated.

The floor of the Temple is tile in decorated pattern—in the center a bronze plaque of the emblem of the American Legion.

The planting will consist of two rows of palm trees, as shown on the photographs and models, and these already exist on the site. The low, flat trees planted for shade are Hau trees, which grow profusely in the Islands and are well equipped for this purpose, being used at several other places at Waikiki Beach. The other planting will be selected for color. There are already on the site two very beautiful Banyan trees.

The work is in charge of Mr. Lyman H. Bigelow, Superintendent of Public Works for the Territory, and the model was made by Mr. B. V. Gerow of San Francisco.

* * *

Oakland Architectural Exhibition

As a part of a national movement to bring architecture into closer relationship with its kindred arts—sculpture and painting—the Oakland Art Gallery is housing an exhibition of work of Eastbay architects that is very creditable. The exhibition includes many beautiful and well-studied residences adapted to the hills that enfold Oakland and her sister cities.

Ruth Gabriel, whose studio is shared by Cora Boom, the aquarelist, shows an interesting study of a fountain that may some day play its part in a secret garden near the lake. Rupert Smith, one of the old guard of California sculptors, is presented in architectural ornament, and Howard Gilkey, landscape architect, offers an aesthetic concept of Lake Merritt that should emphasize in the minds of apathetic Oaklanders the superlative beauty of the jewel set in the heart of the city.

While the big thing to be looked for in the exhibition is the architectural conception—the realized thing—the rendition is not without interest. And a half-dozen of the drawings bear a relationship to etchings, so sensitively and spontaneously are they produced.

Among the architects represented are: William Knowles, Schirmer, Bugbee Co., C. W. McCall, E. W. Cannon, W. H. Ratcliff, Jr., Slocombe and Field, J. J. Donovan, Harris Allen, James W. Plachek, Williams & Wastell, Guy L. Brown, W. R. Yelland, C. W. Dickey, Wm. J. Wilkinson, and Miller & Warnecke.

The Architect's Service to Mankind!

A PRINCIPAL corner-stone of all civilization rests on the work of the architect! Since the dawn of history his labor has been a guiding genius, an inspiring influence of human progress. Through contributions too vast to recount, he has sublimely enriched the world!

Where the architect serves, harmony prevails, skill and beauty dominate, and economy supersedes waste. Countless homes are here to mark the architect's creative force, his understanding of the true and false in residential forms, his application of those ideals that give character and distinctiveness to the builder's art.

Behind those evidences which testify to the Nation's material wealth—its factories, schools, churches, theaters—the pride and power of cities great and small—the architect's guiding hand has been ceaselessly at work. All these are living monuments to his usefulness, his vision and productive skill.

There is no substitute for the architect's painstaking service or the knowledge he brings to those he serves. Against the errors and penalties of inexperience and incompetence, he stands as the protecting arm, watchful of his client's interests.

The exactness of his training, his resourcefulness, his keen understanding of the problems that beset the builder's path, his unchanging code—these are the guarantees he brings to his client's aid.

In the absence of the architect, doubt and uncertainty enter the building program. With him order, the benefit of superior craftsmanship, beauty, grace, value and enduring satisfaction inevitably come!

Those who employ the architect serve best their city and themselves!

The Allied Architects of Los Angeles

(The above was publisl.ed in display tyre in a recent issue of the Los Angeles Times.)

PERSPECTIVE SKETCH, CALIFORNIA MEMORIAL STADIUM, BERKELEY
Designed by U. of C. Stadium Commission

New Design for the California Memorial Stadium

PLANS for the new California Memorial Stadium at Berkeley have been announced by the Board of Regents of the University of California. The giant structure will be of concrete throughout. It will be a combination of the earth bowl and coliseum types, this being made possible by the unique location of the stadium on the slopes of the campus near its southeastern corner. The stadium thus will approximate in appearance that originally proposed, but will hold a more scenic site.

As announced by the Regents of the University some months ago, the site definitely determined upon is in lower Strawberry Canyon. Here the structure will harmonize well with the hillside terrain.

Architecturally beautiful, the stadium will constitute an integral unit of the University buildings group. Its coliseum facade, of the two-story type, is designed to conform with the general architectural style attained on the campus.

The stadium is elliptical in form and is closed at both ends. On the west, the inner (or lower) half of the seats is carried on earth; the outer (or upper) half on a concrete superstructure which at the periphery requires for its support a wall which presents, from the exterior, the appearance of a true coliseum of dignified and stately proportions.

On the west, tunnels and stairways radiate from the interior to portals in the coliseum wall, which open on a wide surrounding plaza. Inclined pathways and short, easy flights of steps connect with Piedmont avenue.

The wall, at its northerly and southerly ends, merges into the slopes of the canyon. At either end of the plaza ample stairways rise, conforming to the base of the wall as it mounts the hillsides, giving access to the broad rimway which is carried at the level of the topmost row of seats around the eastern side. On the east the seats are entirely carried on earth, and radial stair aisles connect the interior directly with the rimway.

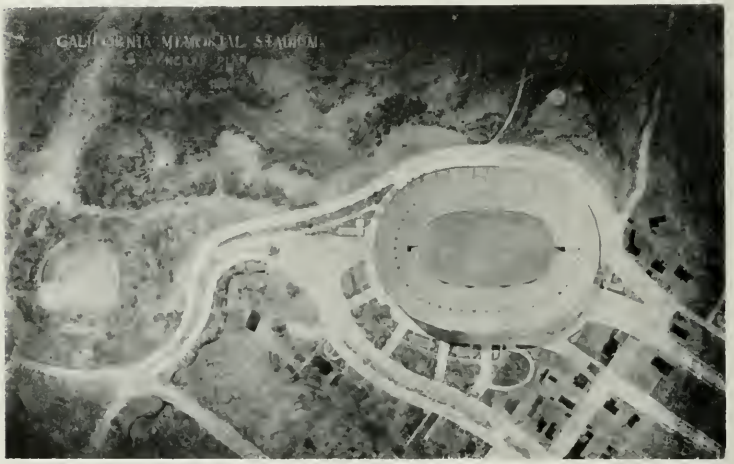
The field within the stadium is of elliptical form, having a major diameter of 459 feet and a minor diameter of 267 feet. It will accommodate a standard playing field for intercollegiate football, which will be carefully constructed with a sub-base of broken rock, screenings

and sand, with a top dressing of loam. The field will be accurately finished and tufted. Plans provide for rapid and perfect drainage under all conditions.

The direction of the major axis of the stadium is such that the rays of the sun in mid-afternoon on November 20 will strike the field at right angles to the direction of play, thus affording the best conditions for use.

All spectators will have an uninterrupted view. The profile of the seating sections has been carefully planned, and visual conditions have been obtained that will render the full playing field in sight from every seat.

Nearness to the field is another asset of the stadium seats. On the major axis, the spectators farthest removed will be 378 feet from the center of the field; on the minor axis, 282 feet. At the Stanford bowl, the corresponding distances are 414 feet and 318 feet respectively.



GENERAL PLAN, CALIFORNIA MEMORIAL STADIUM, BERKELEY
Designed by U. of C. Stadium Commission

The seating capacity will be 72,000. Ample provision has been made for caring for such a throng. The adequacy of the passageways, walkways, and tunnels for exit purposes has been assured, and it is estimated that the structure can be entirely emptied of its capacity crowd of 72,000 within fifteen minutes.

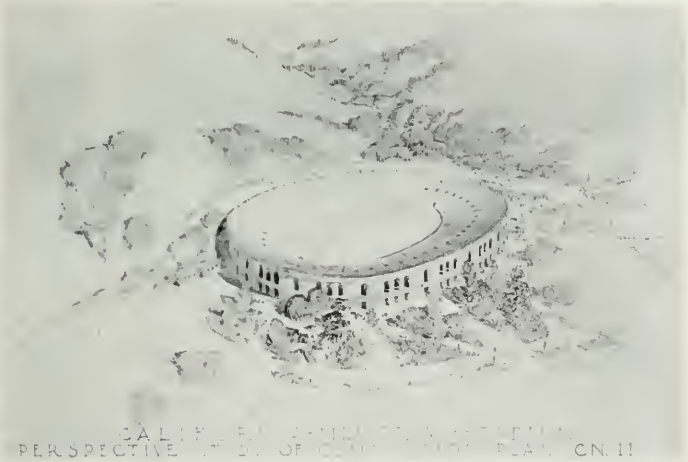
The stadium, besides being used for football and baseball games, will be the scene of pageants, parades, fairs, and rallies. It is admirably adapted to great outdoor gatherings for the furtherance of movements of civic, state, national, and world-wide importance.

The Stadium Commission which designed the bowl is composed of Professor John Galen Howard, and Messrs. E. E. Carpenter and Geo. E. Buckingham. Construction of the stadium is under way, and every effort will be made to have the structure ready for the big game next November.

Asphalt and Pitch Paints Efficient Moisture-Proofing Agents for Wood

THAT some asphalt and pitch paints because of their ease of application and moisture-resistant quality are nearly as efficient as the aluminum-leaf finish now used on airplane propellers, is the evidence obtained by the United States Forest Service in a series of tests which it conducted during the past year in cooperation with the Navy Department at the Forest Products Laboratory, Madison, Wisconsin.

The Navy Department is seeking a moisture-resistant coating of easy application with which to coat seaplanes made of many small wooden parts glued together. On account of the variations in stress resulting from the severe extremes of moisture which a seaplane encounters, it is important to protect the wood with a coating through which the moisture will not penetrate. Otherwise the wood and joints may be weakened. Few of the many coating materials already tested have given adequate protection even though several coats were applied.



PERSPECTIVE STUDY, CALIFORNIA MEMORIAL STADIUM, BERKELEY
Designed by U. of C. Stadium Commission

The aluminum-leaf used on airplane propellers is the best moisture-proof coating known, but it is not suitable to apply to the many small and intricate parts which make up the wings and hulls of flying boats.

Some of the asphalt and pitch paints tested were very moisture-resistant, and others were ineffective. Further investigation is to be made to determine the relative value of the different kinds available, and the Forest Products Laboratory, invites the industries concerned to contribute information, suggestions, and samples of paint for use in this study.

Where other colors than black are desired, asphalt and pitch paints have been found objectionable, since it is difficult to cover them with paints of a lighter color. It is hoped that this defect can be overcome by developing different methods of applying the final coating.

BUILDING FOR PORTLAND TELEGRAM
PORTLAND OREGON

BUILDING FOR TRIBUNE PUBLISHING COMPANY, OAKLAND
EDWARD T. FOULKES ARCHITECT

THIRD CENTURY CATHEDRAL, NEAR ERIVAN, ARMENIA
This church is said to be the parent of our American steeple, and is believed to be the first effort of Christendom to raise the flat Oriental dome to the dignity of worshipful significance

Did the American Belfry Originate in Armenia?

By LAIRD ARCHER

THE tower of an ancient Armenian church at Erivan, Transcaucasia, now the place of worship for war orphans under American care, is the mother of the modern American church steeple, according to the recent opinion of a European expert on architecture, Stridsigovski, a Russian now living in Berlin.

According to this authority, who has written two volumes on Armenian architecture, it was the Armenians who first raised the flat, round top of the oriental mosque to the dignity of a tower erected as a symbol of worship. The dome soon characterized all their sacred edifices. An Armenian architect of King Tiradates' time is said to have restored the great church of St. Sophia in Constantinople with its present dome. Stridsigovski is also of the opinion that DeVinci and Bramanti followed the influence of Armenian architecture in the dome of St. Peters in Rome.

The dome over the church attended by Near East Relief orphans in Eriven, the Armenian capital, dates back to the seventh century, and was erected by the Armenian Katholicos, Kemitas, in the place of an earlier structure of wood. Its polygonal drum shape with a window in each face and its conical roof has been copied by thousands of churches.

In another tower on the church is a famous Tibetan bell, but the original steeple was not built for a belfry. Bell towers did not arrive in Christendom until the thirteenth century, according to Stridsigovski, when bells replaced the drum and gongs used by the early Christian priests of Armenia.

Books on Spanish Architecture

Compiled for The Architect and Engineer by the Art and Music Department of the Los Angeles Public Library

THIS list of books was compiled by the Art and Music Department of the Los Angeles Public Library to assist the local architect in his search for authoritative material on Spanish Architecture.

By separating the books on the three distinct styles—Spanish architecture in Spain, Spanish-Colonial, and Mission—it becomes easy to trace the development of the Mission back through Mexico to Spain, and so to the archaeological remains on the island of Majorca, which is one of the connecting links between the Moslem architecture of the East and that of Spain.

The choice of books is catholic. Such modest volumes as Mayer's Architecture and Applied Arts in Old Spain and Hielscher's Picturesque Spain (that miraculously inexpensive volume of beautiful photographs) have as good a right to inclusion, according to the standards of practical use, as the monumental works of Owen Jones and Constantin Uhde.

SPANISH ARCHITECTURE IN SPAIN

General:

Arte y Decoracion en España. Barcelona, Casellas Moncanut, 1917-20.

Byne, Arthur—Spanish Architecture of the Sixteenth Century. Putman, 1917.

Calvert, A. F.—Moorish Remains in Spain. Lane, 1906.

Hielscher, Kurt—Picturesque Spain. Brentano, n. d.

Jones, Owen—Plans, Elevations, Sections, and Details of the Alhambra. 2 v. Lond., 1842-45.

Junghandel, Max.—Die Baukunst Spaniens. 2 v. Dresden, 1893.

Lampérez y Romea, Vicente—Historia de la Arquitectura Cristiana Española en la Edad Media. 2 v. Madrid, J. Blass, 1908-09.

Majorque Artistique, Archéologique Monumentale Barcelona, Pons, 1899.

Mayer, A. L.—Architecture and Applied Arts in Old Spain. Brentano, 1921.

Murphy, J. C.—The Arabian Antiquities of Spain. 3 v. Lond., Cadell and Davies, 1813.

Uhde, Constantin—Baudenkmaeler in Spanien und Portugal. 2 v. Berlin, Wasmuth, 1889-92.

Whittlesey, Austin—The Minor Ecclesiastical, Domestic and Garden Architecture of Southern Spain. Architectural Book Pub. Co., 1917.

Whittlesey, Austin—The Renaissance Architecture of Central and Northern Spain. Architectural Book Pub. Co., 1920.

Architectural Detail:

Album de la Renaissance Espagnole. Madrid, Miguel, 1916.

L'Espagne Monumentale. Paris, A. Guerinet, n. d.

Polley, G. H.—Spanish Architecture and Ornament. G. H. Polley & Co,, 1889

Prentice, A. N.—Renaissance Architecture and Ornament in Spain. Bost, 1893.

Rivoira, G. T.—Moslem Architecture. Oxford University Press, 1918.

Spanien; eine sammlung architektonisch wertvoller motive und details von alten Bauwerken. Berlin, Toussaint, n. d.

Interiors:

Byne, Arthur—Decorated Wooden Ceilings in Spain. Putman, 1920.

Byne, Arthur—Spanish Interiors and Furniture. Helburn, 1921.

Ironwork:

Byne, Arthur—Rejería of the Spanish Renaissance. De Vinne Press, 1914.

Byne, Arthur—Spanish Ironwork. Hispanic Society of America, 1915.

SPANISH COLONIAL ARCHITECTURE

General:

Baxter, Sylvester—Spanish-Colonial Architecture in Mexico. Bost, J. B. Millet, 1901.

Goodhue, B. G.—A book of Architectural and Decorative Drawings. Architectural Book Pub. Co., 1914.

La Beaume, Louis—Picturesque Architecture of Mexico. Architectural Book Pub. Co., 1915.

Neuhaus, K. E.—San Diego Garden Fair. P. Elder, 1916.

Winslow, C. M.—The Architecture and the Gardens of the San Diego Exposition. P. Elder, 1916.

Architectural Detail:
Weston, Eugene and Hunter, H. F. Mexican Architectural Details. 3 v., n. p., n. d.

MISSION ARCHITECTURE
Duell, Prent.—Mission Architecture as Examplified in San Xavier del Bac., Arizona Archaeological and Historical Society, 1919.
Newcomb, Rexford—Franciscan Mission Architecture of Alta California. Architectural Book Pub. Co., 1916.
Smith, F. N. R.—Architectural History of Mission San Carlos Borromeo. California Historical Survey Commission, 1921.

* * *

Government Report on House Building

Cheaper and more durable homes for the American people is the object of a report made public recently by the Building Code Committee of the Department of Commerce. The Committee was appointed by Secretary Hoover to investigate building practice and code requirements in the United States and to prepare standard building regulations based on the latest and best information which might be recommended to cities and states adopting or revising building codes.

The Committee has recommended in its report the minimum requirements which it believes should be enforced by cities in their building codes for one and two-family houses, and in an appendix discusses good practice in small house construction. The one hundred page printed report now made available at a nominal price to all interested in better and more economical housing construction, by the Department of Commerce, not only presents a model ordinance which cities may adopt, but serves as a guide to all those interested in showing where to save and where to spend in order to obtain a safe, substantial and durable house at a minimum cost.

* * *

How Horsepower Unit Was Determined

The horse-power unit was established by James Watt, and the figures were settled in a curious way. The Detroit News recites that Watt, in his usual careful manner, proceeded to find out the average which the horses of his district could perform, and he found that the raising of 22,000 pounds one foot per minute was about an actual horsepower. At this time Watt was employed in the manufacture of engines. Customers were so hard to find that all kinds of artificial encouragements were considered necessary to induce power users to buy steam engines. As a method of encouraging business, Watt offered to sell engines reckoning 33,000 foot-pounds to a horse-power, or one-third more than the actual. And thus, what was intended as a temporary expedient to promote business, has been the means of giving a false unit of very important measurement to the world.

* * * *

Warping of Concrete Roads

It has been recently found, in the course of experiments by the United States bureau of public roads, that the edges of concrete roads curl up and down in response to changes in temperature. The unequal expansion and contraction of the upper and lower sides of the concrete slab under the influence of heat cause this curling. At the time of day when the surface of the road becomes the hottest it expands more than the cooler side and the sides move downward. At night, when the edges cool, they curl upward.

More Anent the New Imperial Hotel at Tokio, Japan

From the Washington State Architect

IN the Architect and Engineer for the month of November, 1922, there was published a description of the new Imperial Hotel at Tokio, Japan. The heading is, "A Building That Is Wrong," by L. C. Mullgardt, a well-known architect of San Francisco.

The pictures of the building bear out in the fullest degree the scathing criticism which the writer of this article applies to the structure. The building, while it was erected by an American architect, is the greatest hodge-podge of architecture that it has ever been our privilege to see illustrated.

The architect has tried to put an Oriental character into the building and has failed most miserably. There is absolutely no architecture to it, and if we are to believe the article, there is not much building either. Such crudity of design we could hardly think possible, even from the most inexperienced amateur in this enlightened age.

We have noticed in much of the late work of the Japanese architects that the buildings are quite creditable, and have a distinct character along classical lines. These buildings have been erected undoubtedly by architects trained either in the United States or in Europe.

Japan has adopted modern methods in all of her civilization, including architecture. Now what kind of logic is it for an American architect to go to Japan and construct a building of such monstrous design when the thing that the Japanese want is the kind of architecture that we have? They must have wanted it or else they would not have employed an American architect.

Such a proposition as has been worked out in the Imperial Hotel serves only to belittle the American in the sight of the Japanese. Perhaps the architect thought he was giving them the very latest new ideas. If so, we should say that this is architecture gone to seed. What a fine chance the architect missed to construct something monumental and to show to the people of Japan just the high ideals which the American people love to practice.

The cost of this building, as stated in the Architect and Engineer, has been around three million dollars. This would have been the chance of a lifetime for the architect to construct his masterpiece.

The building is not only atrocious in design but flimsy in construction. There are parts huge in proportion alongside of delicate slim members with no modifying member in between. There is almost absolute absence of any wall surface. Meaningless ornament is implanted recklessly anywhere, as if some kid had taken a mud ball and thrown it at random at the wall and said, "Put the ornament here." There is no proportion, symmetry or continuity to any part of the design.

"Peacock Alley," as it is called in the picture, is reminiscent of the Stone Age. The dining room ceiling looks like the inside of a Chinese laundry with the washing hanging out. Such a labyrinth of misused material can hardly be conceived of in this enlightened age. If this is the culmination or the beginning of a new style of architecture for Americans or any other nation, you may please excuse us. We can only class it as the dream of a narcotic imagination.

The only object that the Japanese could have had in employing an American architect for this work was in order to get something better than they could get at home. The American architect was surely a flat

failure on this work. We might say that it is none of our business. This country has a reputation to sustain in architecture as well as other things, and we are going to criticize whenever criticism is necessary. In the case of such a flagrant conception as this it is our duty to call the attention of the public to it.

The Imperial Hotel is a flagrant example of the folly of departing from certain known and tried forms of architecture. These forms have stood the test of centuries, and will continue to stand the gaff of other centuries to come.

Our whole national life is based on criticism as a necessary element of progress. When we speak of criticism, we mean constructive criticism and not that born of jealousy. It has often been said that there are two roads to wisdom and we must travel both of them, what to do and what not to do, and both are valuable. The architect who wishes to know what not to do should take a trip to Japan, and he will soon see a real example of it in the Imperial Hotel.

* * *

Architect Is Seriously Injured Due to Violation of Safety Orders*

Official Report by J. J. ROSEDALE, Chief Construction Engineer, California Industrial Accident Commission

AT about 3 p. m. on October 17th, 1922, an architect, accompanied by one of the directors of a club building under construction, on an inspection of the building, stepped on one of the construction elevators and as it started to move upward a wheelbarrow of bricks overturned on the sixth floor as it was being taken off the elevator cage, causing numerous bricks to fall down the elevator shaft, which resulted in fracturing the architect's skull and slightly injuring the person accompanying him.

The two construction elevators are the ordinary types of builder's cages used on construction work. They are operated by an electric hoist, and when one cage goes up the other comes down. The architect ordered the engineer to be taken up to the sixth floor before a release signal was received from the sixth floor. As the elevator started to go up a hod carrier was taking a wheelbarrow of bricks aff the elevator cage on the sixth floor, and was only about half way off the cage when the elevator was lowered. This movement of the cage caused the wheelbarrow to drop and several bricks to fall, striking the architect on the head and the person accompanying him on the shoulder and arms, on account of the lack of the screen on top of the cage.

The elevator on which the two persons were riding did not have a screen or cover on top, as required by General Construction Safety Order 1113, which requires that elevator cages shall be protected from falling materials, and shall have the unused sides close boarded to a height of three feet six inches. The screen which was formerly used on this cage was removed about four days before the accident to permit the hoisting of lumber. The lack of this screen caused the bricks to fall.

The bell signal was not used in this case as required by General Construction Safety Order 1113, which stipulates that bell, whistle, or electric signal shall be provided on all elevators, hoists and all other hoisting machines on construction work, except hoists or derricks where the hoist operator has a clear and unobstructed view of the derrick and signalman, in which case a manual system of signaling may be used.

* Friends of Mr. T. Paterson Ross, the architect referred to in Mr. Rosedale's report, will be pleased to learn that he is fast recovering from his injury.

The hod carrier who was removing the wheelbarrow of bricks from the elevator on the sixth floor was unaware that the elevator was to be lowered.

There were caution signs on both elevators prohibiting workmen from riding on these elevators, and the engineer in charge of the hoist stated that he had received orders from the architect and the owner not to hoist any workmen and not to hoist the elevators without receiving the proper signal from the upper floors. The hoisting engineer also stated that he had orders from the architect and the owner of the building to hoist the owner, the architect, and the directors of the club building whenever ordered by them personally.

In view of the fact that the architect and owner are directly responsible for the construction of this building and the safety conditions therein, and who deliberately violated the safety orders of the Industrial Accident Commission, thereby setting a bad example to the workmen on the building, the Industrial Accident Commission urgently requests that hereafter all persons responsible for the construction and safety conditions of any building under construction comply fully with the safety laws and orders of the Industrial Accident Commission of the State of California.

* * *

Economic Problems of the Skyscraper

THE height of business and industrial buildings should be, and usually is, determined by economic considerations. Artistic and humanitarian considerations may influence the design, but very rarely will they control the height or other truly major features.

Popular belief to the contrary notwithstanding, most of the legal limitations on heights have been prompted by economic motives, the economics in these cases being of the community as distinguished from those of the individual. The novelty of the skyscraper having vanished, we happily seldom hear objections to it merely because of its difference from that to which we once were used. Neither is the charge of unsightliness any longer leveled by large numbers of architects and laity against high buildings en masse. In short, the skyscraper is here and is welcome; and the offenses of this or that building against economics or art are for the most part regarded only as incidents, a repetition of which is to be avoided.

But though economics be never so clearly recognized as the proper basis for height determination, its application to specific problems is not usually easy, as witness numbers of costly mistakes. The matter may be viewed in the light of either private or public interests, which unfortunately are not always the same. The reasons for such divergences, though fairly simple, are not always clearly recognized.

The erection of a skyscraper is likely to have varied effects on adjacent property values. Inferior buildings for a considerable distance around are bound to suffer losses in value—those nearest because they are deprived of some of their light and air, and all of them because of the competition of the finer structure. Land values, on the other hand, are generally enhanced by the structural improvement and the increased concentration of business in the district. The net effect on the district will vary in different cases.

The builders of skyscrapers are scarcely to be censured for the damage they may inflict upon other property, for the ethics of business permit competitors to take what advantage they can within the law and without misrepresentation. If a finer spirit goes beyond this to the ex-

tent of considering the welfare of others as well as of itself, it is merely entitled to the commendation due a fine and generous act.

It is the duty of local legislative bodies to establish such limits on heights of buildings as will best serve the interests of the whole community; and among the considerations upon which such limits may properly be based are the capacities of the streets to handle traffic, conditions of light and air in the streets, and the benefits and losses accruing respectively to the early erectors of high buildings and to the owners of other property because of the fact that no considerable area can be completely covered to a great height. The measurement and balancing of all the factors is obviously a task requiring the greatest of skill.

It would be interesting to inspect a table showing the costs of a large number of tall buildings and the ground on which they stand, together with a record of the earnings of each from the time of its completion to date; in fact, such a table would be far more than interesting; it would provide an invaluable aid to the prospective investor in a structure of this class. Some skyscrapers have been money-makers; others have been complete economic failures, and have never paid even a moderate rate of interest on the funds invested in them; and a study of the histories of many cases of both sorts would be the surest guide to wise decisions on cases yet to come.

The complete avoidance of mistakes obviously is impossible. We deal with changing conditions, and study the past or project our curves as we will, there will be developments which we cannot foresee—developments industrial, social, mechanical. The most that the builder can hope to achieve is by the use of every means available to reduce his risk to a rate comparable to that of other lines of stable and conservative activity. The engineer-economist will find few more attractive problems than these; and the capitalist may be made or saved a fortune by the use of competent technical assistance to picture the future of the buildings which may be erected.—Engineering and Contracting.

* * *

An Apartment House for Kiddies

Mr. Benjamin Brodsky of Los Angeles has built a sixty-five thousand dollar apartment house at 1300 Rialto Avenue, Venice, California, to make people happy. The new apartment house pays a premium for children. Some of the rules which govern the operation of the building are:

All three-room apartments, fifty dollars a month. All two-room apartments, forty dollars a month. No single persons, male or female, may live in the apartment house.

All married couples living in the establishment must have children. Rent in cases of more than one child is scaled down at the rate of five dollars a child.

A newly-married couple coming to live in the Rialto Apartments—for such they are named—will be given one month's free rent. At the end of the year, if the couple have no children, the rent will be doubled or they must move out. If a child is born in the house, the parents are credited with one month's rent.

Children living in the apartment house, who by their own efforts save ten dollars, will be given a silver dollar every birthday.

Central Vacuum Cleaning Systems

By E. J. SKILLMAN, in Architectural Forum

A CENTRAL vacuum cleaning system, which is usually designated as the "stationery" type to differentiate it from the portable or movable type of cleaner, is given very careful consideration by architects and engineers in planning all types of buildings from the small residence to the larger commercial building. Vacuum cleaning has passed through the same stages of development as the automobile and cannot longer be considered as experimental.

It is obvious that many advantages are possessed by a central system for cleaning in which all the dirt from the building is conducted to a central point in the basement, and the air itself, which after being mixed with the dirt becomes very foul, is exhausted into the flue and out of the building. These advantages belong to the central system, when properly installed, rather than to the portable type vacuum cleaner. There are places where the small portable cleaners have their use, but in this discussion we wish to consider only the complete installation.

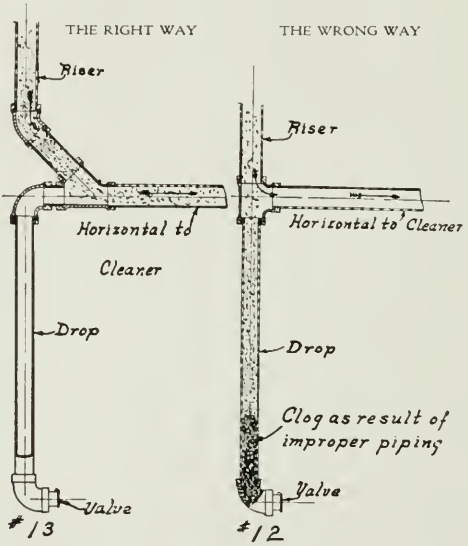
During the development period of vacuum cleaning the manufacturers made various claims for their apparatus, some urging high vacuum and low volume, others medium vacuum and volume,and others low vacuum and high volume. It has been finally determined that the proper method of measuring the cleaning value of any machine is to have a definite vacuum at the end of hose lines, where the cleaning is being done under cleaning conditions. When cleaning carpets a high vacuum and a small volume are necessary,and when cleaning bare floors a lesser vacuum and greater volume are necessary. Properly designed vacuum cleaning systems will today produce the right proportion of vacuum and volume at the end of the hose for both bare floor work and carpet work. This proportion remains uniform, not only for different kinds of cleaning, but also for different distances from the machine, having the same efficiency on the top floor as on the ground floor.

For commercial cleaning, where the cost of labor must be considered, the vacuum cleaning system should be specified to meet this capacity test:

"This system shall be subject to what is known as the orifice test. The vacuum producer shall maintain a substantially constant vacuum under all working conditions and be capable of maintaining for each sweeper at the end of 50 feet of hose, not over $1\frac{1}{2}$ inches diameter, attached to any inlet valve in the building, a vacuum of not less than 2 inches of mercury, while a round, sharp-edged orifice $\frac{7}{8}$ inch in diameter is wide open, and a vacuum of not less than 3 inches of mercury, while a round, sharp-edged orifice $\frac{5}{8}$ inch in diameter is wide open. To determine whether the apparatus meets these specifications, one outlet for each sweeper, which the apparatus is to operate simultaneously, shall be selected by the engineer making the test. To each of these outlets shall be attached 50 feet of hose the size used with the system. In each of these lengths of hose, excepting one, shall be placed a plate $\frac{1}{8}$ inch thick with a $\frac{7}{8}$-inch round, sharp-edged orifice through it. In the end of the hose where the test is to be made shall be placed a hollow metal globe, substantially 4 inches inside diameter, to the top of which shall be attached a vacuum gauge and in the side of which shall be a $\frac{7}{8}$-inch round, sharp orifice. The vacuum gauge under these conditions should show not less than 2 inches of mercury. A similar test shall be made, using a $\frac{5}{8}$-inch orifice instead of $\frac{7}{8}$-inch, under which condition the vacuum gauge must not show less than 3 inches of mercury."

Any machine meeting this capacity test will give for each sweeper specified a cleaning efficiency at the tool end which will make possible the quick and thorough cleaning of not only carpets and rugs but bare floor surfaces, whether of wood, terrazzo, marble or linoleum.

There are but three types of vacuum cleaners being manufactured today—the multi-stage turbine type, the single-stage turbine type, and the double-impeller pump type. It is important that the installation of a vacuum cleaning system be given consideration at the time the plans are being drawn, so that the piping may be properly laid out in con-



Showing Pocket Avoided by Use of Proper Pipe and Fittings at Left

Always Place Y-branches So They Will Turn in the Direction of Flow

junction with the heating, plumbing and ventilating, and that the benefit of competitive bidding on the piping may be had. The cleaning plant itself, with the hose, tools and inlet valves, can be included in the plumbing contract or purchased by the owner or general contractor as may be more convenient.

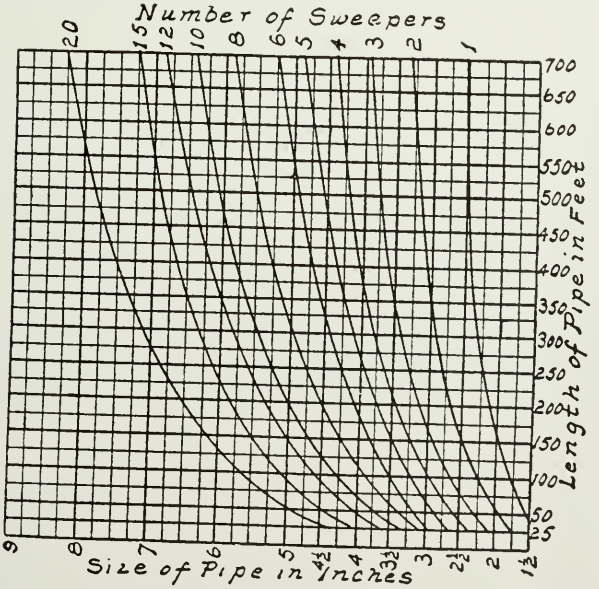
The piping system is quite as important as the selection of the machine. This piping should be planned so that any part of the building

may be reached from the various inlets, using not over 50-foot lengths of hose. While it is possible to use 75 feet or even 100 feet of hose, and still obtain comparatively good cleaning results, it should be remembered that the hose will wear out and the pipe will not, and that the labor cost is much greater when long lengths of hose are used. The proper kind of piping for vacuum cleaning is either black iron or mild steel, and all fittings are to be of the long turn, recessed drainage type. All pipe should be reamed to the full inside diameter, and all fins or projections removed and screwed "home" full against the shoulder of the fitting so as to leave a smooth, uniform bore.

The illustrations show the right and wrong methods of installing fittings for vacuum cleaning work.

The piping should not be so small as to require too high vacuum, high velocity and low density, with the accompanying reduction in carrying capacity and increase in "sand blast" wear, nor, on the other hand, so large as to reduce the velocity sufficiently to permit settling. For commercial cleaning no rising line should be of less than 2½ inches, to avoid the possibility of stoppage from matches, toothpicks, hairpins, etc.

To determine the proper size piping for a vacuum cleaning system of one-sweeper and up to 20-sweeper capacity, the curves shown in the illustration included here should be used.



The diameter of pipe for vacuum cleaner systems may be determined by following the curves showing the number of sweepers to the intersection of the horizontal line, giving the length of feet from the vacuum producer at the right. Directly below this intersection in a vertical line the size of pipe will be found. This applies to the actual number of sweepers likely to be in operation simultaneously on any branch of the system and not to the number of attaching points. Add 10 feet to the length of pipe in system for each 90 deg. elbow.

An exhaust pipe should always be run from the machine to dispose of the foul air. This exhaust pipe should lead into the boiler flue or in the breaching surrounding it, or to any flue which has no opening above the basement.

The specifications should also call for the installation of a rubber sleeve or sound breaker, to be placed next to the machine on both the intake and discharge lines. This is to prevent the transmission of sound and vibration. Inlet valves to which the hose is attached should be specified in finish to match the surrounding hardware, and should be preferably of the spring closing type, and in school buildings should be called for in lock type. It is the usual practice to place these valves in the center of the baseboard, but where it is too narrow to permit of this being done they should be placed not over 10 inches from the floor, which will prevent the hose breaking at this point.

Vacuum cleaning systems designed to meet the capacity test as called for can clean with each sweeper specified 3000 square feet of carpeted surface per hour or 7000 square feet of bare floor surface per hour. By taking the total square foot area of the building and figuring the approximate amounts of bare floor and carpeted space to be cleaned the number of sweepers necessary to clean any size building may be quickly determined, based, of course, on the number of hours during which the cleaning can be performed.

A recent treatise on vacuum cleaning claims that an ideal vacuum cleaning system would be one which when installed in any building will displace all appliances used for dry cleaning. A central cleaning system with a proper system of piping and capable of meeting the capacity test mentioned in this article will make this possible, and will not only greatly promote the sanitary conditions in the building, but will do the cleaning with saving in the cost of labor as compared with the old methods.

* * *

Ten Story Office Building for Fresno Power Company

The tallest building in Fresno, designed by the R. F. Felchin Company, is being erected by the San Joaquin Light & Power Corporation. The structure is to be ten stories in height and will cover an area 150x75 feet.

The new building, according to Mr. A. E. Wishon, vice-president and managing director of the company, will be of class A construction, with a tinted brick and terra cotta exterior face. The estimated cost of construction has been placed at $600,000.

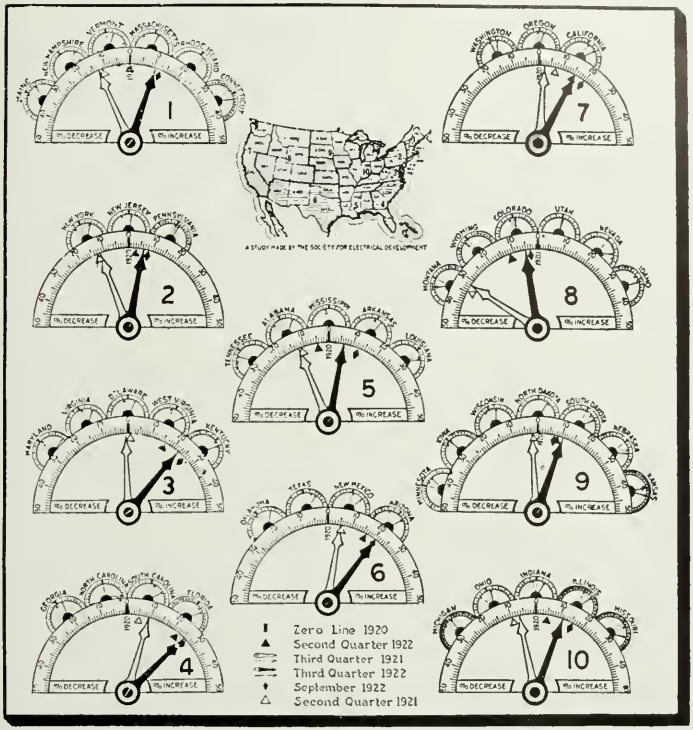
According to projected plans, the building, when completed, will be the most brilliantly illuminated in the southwest. Flood lights in colors are to give the brick and terra cotta facing a spectacular brilliancy, making it visible from points several miles from Fresno. A large electric sign to be placed on the roof will be illuminated every evening.

The San Joaquin Light & Power Corporation and its subsidiaries will occupy the entire building, except one floor and thirteen offices on another floor, which will be rented until the growth of the company's business requires these offices for its own use. The accompanying illustration and that of the Long Beach City Hall are shown by courtesy of the Journal of Electricity.

BUILDING FOR THE SAN JOAQUIN LIGHT & POWER CORPORATION
FRESNO, CALIFORNIA R. F. FELCHIN COMPANY, ARCHITECTS

CITY HALL, LONG BEACH
Illuminated at Night by Flood Lighting

KITCHEN IN FRESNO BUNGALOW
Electrically Equipped Throughout



These dials are the result of a study made by the Society for Electrical Development on the theory that the consumption of electricity is a sensitive index of industrial activity, because electrical energy is developed and measured only as it is needed for useful work. Each dial represents a group of States, each of which in turn is represented by smaller dials on top of the big indicators. The central zero point (situated as on an ammeter) represents the consumption of electrical energy in 1920, and the arrows, diamonds, and triangles show the changes in consumption for subsequent periods, as indicated in the legend.

A Survey of the Electric Lighting Industry

MANUFACTURERS of electric lighting equipment report considerable improvement in technical knowledge, production and sales during 1922. John Liston, of the General Electric Co., writing in the National Electragist, gives the following survey, says the Industrial Digest for January:

"Estimated sales of tungsten filament lamps (excluding the miniature type) in the United States during 1922 totaled 205,000,000, 3,000,000 more than in 1920, the record year, and 45,000,000 more than

in 1921. Sales of carbon filament lamps are estimated to have been 4,000,000, as compared with 63,000,000 in 1907, the year in which they reached their maximum sales and in which the tungsten type first began to be marketed.

"The most spectacular feature of incandescent lamp manufacture was the production of a 30,000-watt unit, having a capacity of about 100,000 mean spherical candle-power and being the largest lamp of its kind ever made. Its use up to the present has been confined to experimental motion picture work, and it has not yet been developed on a commercial basis. Another development of the year was the standardization of a 75-watt white Mazda lamp.

"There is every indication that approximately 83,000,000 miniature lamps were used during 1922. Of these, 58,000,000 were of distinctly automobile types, while the consumption of flashlight lamps was practically 16,000,000. Eight million were used for Christmas tree lighting outfits, the other million representing those used for miscellaneous purposes.

"There was considerable increase in the application of small incandescent electric lamps of the 3.5 volt, 3 ampere and 13.5 volt, .25 ampere types, operated by batteries. Some application of the same type of lamp and batteries were made to small range lights and buoy lights in the lighthouse service.

"An investigation showed that in the lighting of a large number of small stores, the popular type of luminaire or fixture had changed from the open glass reflector to the enclosing globe. A corresponding tendency was noted in the lighting of other classes of interiors. Recently the styles in enclosing globes themselves have been changing, so that now flat or squat shapes are becoming more and more common. Prior to 1922 there was a marked tendency in luminaire design for home lighting toward styles that use candelabra and round bulb Mazda lamps, oftentimes without shades or external glassware.

"There were indications during the years of a reaction, and an increasing number of luminaires were being equipped with shades and globes, while a number of types of special shading devices for attaching to candle fixtures appeared.

"Floor and table lamps are becoming increasingly popular in homes. A new type of semi-indirect portable which bids fair to further popularize the portable luminaire and improve the lighting of the home was placed on the market. One of the most helpful signs of improvement in home lighting was the issuance of a code on luminaire design, prepared by illuminating engineers in co-operation with fixture designers."

* * *

Few American Architects in China

Because of the relatively small number of American architects in China, the market for American hardware, heating plants and all kinds of construction supplies is seriously handicapped. In the city of Shanghai alone there are at present in process of construction banks and office buildings to the value of several millions of dollars. Practically all of these buildings have been designed by non-American architects, and are being built by Chinese contractors supervised by foreigners.

It is only natural that an architect should demand materials from his own country, with which he is familiar. This fact obtains unusual prominence in China in view of the extremely close international competition which exists in all lines.

The Architect—Why Employ Him?

Being a Circular Addressed to Persons Interested in Building

By the IOWA CHAPTER, American Institute of Architects

YOU who have never employed an architect may question the need of his services. You with some experience with him, may still not appreciate the intricacies of his practice or what to expect of him. Do not decline to employ him without investigation.

The architect—literally, "the chief of the works" is a clearing-house artificer who knows how to consider, sift, and harmonize all ideas; to secure attractive, refined, common-sense and economical buildings, with a valid reason for every element in his plan and specifications; to settle all questions beforehand and protect your every interest at all times.

That which is well done is beautiful; to say "it is architectural," is the greatest compliment.

You may not understand that architecture is a profession calling for men of the highest integrity, business capacity and artistic ability—men fitted to command respect and confidence as advisors, and sustain a grave responsibility to the public. No one may have given you practical information as to the relations that should exist between client and architect. Experience has shown that lack of information on this subject may be a cause of trouble in building. The following is a brief outline of the vital elements in building:

The Real Aim and Reason.

1. Your interest is to secure the most valuable service, the most suitable design and the best construction, at the most economical expenditure. These can only be obtained by employing, not as a luxury but as a necessity, an expert—a competent and reliable architect. You will be most benefited by choosing an architect before deciding upon anything connected with the building proper (if possible, even before you determine the building site and limit of expenditure), thereby gaining the services of the expert's technical experience and knowledge in every phase of the problem.

Assurance.

2. As you do not and cannot know what you are buying, you must trust to the architect. Therefore, you should first of all assure yourself that the architect is worthy of your confidence, and that he is fitted, by study of economy in plan, construction and materials, to discharge this grave responsibility—in short, that he has the right to the professional title, just as you do in choosing your physician and attorney.

Dealing With Him.

3. Do not expect gratuitous competitive designs any more than free diagnosis, prescriptions or briefs. Plans are not like merchandise—kept in stock to fit all needs; the model plan exists only for its individual place and condition; each building requires special study to adapt it to its site, environment and use. The architect has been trained to this end, and through his experience he is able to bring to you this service.

Method and Procedure.

4. Designing a building is a process of evolution. The architect's function is to work out for you the best solution of the problem in hand. To his judgment is entrusted the consideration of a multiplicity of ideas, wishes and needs. The best eventual scheme may be quite different

from the one first suggested either by your architect or yourself. This may require several separate sketches and many modifications, which are part of an architect's regular, complete service, and is obtainable in no other way. Hence, you would get the benefit of your architect's mature thoughts in careful consideration of the various possible solutions of the problem, and would not simply adopt the scheme presented to catch your attention and "get the job."

Let your architect assist you in the proper location of your building. He will regard the points of the compass for light and air, the character of the site, the soil, the grade, the outlook, environment, etc.

Do not mar your buildings by incongruous decorations and furnishings. If you desire an effect of organic unity when the work is done, make use of the architect's service to that end.

You will thus obtain the complete services of an expert, and not those of a mere draughtsman. A blue print is not the sum and substance of the architect's service, but is one form only of instruments in service—simply a photographic copy of a drawing which represents time and study.

His Standing.

5. The architect's practice is upon the same basis as that of the physician and the attorney; each is a profession, and the selection of the best qualified man should be made upon a record for character, integrity, ability, and fitness for service.

His Fee.

6. To employ an architect on the basis of his low charge is usually wrong. "Penny wise and pound foolish" is this economical method.

An incompetent man in selling his service for a small fee may, and often does, waste a great deal of money in inefficient planning, unsafe and unscientific construction and design, and unwise specification of materials.

An incompetent man as supervising architect is worse than useless, as he has no standards of his own. He is at the mercy of the builder.

A competent architect may easily save the client several times the amount of his fee.

Quality.

7. Architects, like doctors and lawyers, place different values upon their services, and their services likewise vary in merit and results. This should not confuse you. The best is likely to cost more but be cheaper in the end.

The Trust.

8. In merchandising one may buy calico or silk and pay accordingly, but there is only one kind of professional service worth paying for—the best the architect (or doctor or lawyer) is capable of giving. This means, generally, adherence to established standards of practice and adequate fees. To under-pay any man is to tempt him to slight your interests. "The architect should not receive any commission or any other substantial service from a contractor or from any interested person other than his client."

He is agent for no one except his client.

Working With Him.

9. Make up your mind what you must have. Then take the architect into your confidence as to the amount you are willing to pay or expend. Be perfectly frank with him. Do not set a price and then refuse to relinquish terms and conditions which are bound to make

your building cost more than you are willing to spend. Do not hurry. Take time enough on the preliminary sketches that you and the architect may understand each other before the working drawings are started.

Each party should keep duplicate records of all understandings, agreements and instructions.

Alterations after the approval and completion of working drawings necessitate additional cost to the architect, for which the client should pay.

The Construction Stage.

10. Use the architect's experience and knowledge of men and materials—in getting bids, in making contracts, and in supervision.

Do business only with a capable and honest contractor. Incompetence is as much to be avoided as dishonesty. You cannot expect to get an honest building if the price asked is too low.

Watch the work as much as you see fit, but if you have employed an architect whom you can trust rely upon him and save yourself time and worry. You can earn more at your business than you can save trying to assume responsibility which properly belongs to the man you have employed to carry your work to completion.

Avoid Cross Currents.

11. Do not violate the principle which requires one head to the job. Let your instructions to the contractor be given through the architect. The contractor who comes to you with suggestions or calls your attention to real or fancied errors in the drawings or specifications should be referred to the architect. Make use of the architect's advice throughout.

The Harmonious Distribution of Expenditure.

12. Architectural service is the only form of reliable insurance that the client may purchase which gives the right to claim that he is getting what he paid for.

The architect puts selling value into a building—not only because the owner can claim for the building what the architect certifies it to be, but also because of the intrinsic value which results from a good design as compared with a poor one.

13. "Free Plans," which are offered with material or construction contracts, can in no manner or degree approach the quality or satisfaction of the real service of an architect.

Final Cost.

14. If you follow these hints in all they imply, there is no reason why your structure should cost you a cent beyond the estimated price, (deliberate changes made by yourself excepted), or why it should cost you more worry than any ordinary business transaction.

The Aim of Architecture.

15. The American Institute of Architects, composed of the leading architects of the nation, has for its object: "To organize and unite in fellowship the architects of the United States of America, to combine their efforts so as to promote the artistic, scientific and practical efficiency of the profession, and to make the profession of ever increasing service to society."

The Iowa Chapter of this Society offers the above for careful consideration, and will be pleased to furnish copies of service documents and other information, or discuss any points with interested persons.

Save the Architects!

By F. W. FITZPATRICK

A PERTINENT letter, from a big business man in Chicago, anent "Salesmanship in Architecture," published in the Architect and Engineer of November, 1922, interests me very much. The gentleman takes a broad common-sense view of the relation of architects to their clients, deplores competitions and all that sort of thing, and advocates a frank advertising and personal approach of the architect in offering his services—until such time as people come running to him with jobs on a silver salver.

The letter suggests something else to me, a text for a sermonette to architects. I want to talk to them about "Business in Architecture." And I know fairly well what I am talking about, too.

Forty years in architecture and twenty of these as a consulting architect, intimately associated with so many of the practising architects of this country, of Canada, and of Australia, have given me, I contend, a fairly good insight into all phases of the profession's twistings. I believe that I know more architects, more about their business, their troubles and their shortcomings than does anyone else hereabout. And it is this very intimacy with such details that prompts me to respectfully offer a suggestion, let us call it a constructive criticism, that if effective may help to brush away some of the ills that beset the path of most architects in their latter years.

All our schooling, all our training is technical, artistic, and none of it has to do with business, the ordinary commercial direction of a man in the ways of the business world, or even how to take care of himself financially. Indeed, in most schools of architecture and training offices a youngster is soon imbued with a lofty condescension toward mere business; he must soar above such sordid considerations as the despised dollar and all that sort of thing. It is a pernicious influence; it works to the disadvantage of the architect's clients, for he is not careful of their expenditures, passes over questions of cost too lightly, and it works to the final destruction of the architect himself. He is too prone to look upon his work as an art that must not be trammelled with uninteresting financial details. He makes plans over and over again, changes his designs, and lets overhead and frills eat him up.

Too many of us scorn the time-clock and business-like aids that insure a profit on our work. In fine, as a class we are unsystematic, unbusinesslike, improvident, and most of us come to a rather unattractive end.

I submit that the young man should receive, with his artistic and technical training, a sound grounding in the principles of business, of economy, of dealing with people and money, saving, all that sort of thing. Too many of us are veritable numbskulls even in taking care of ourselves.

Years ago I had many sad experiences with architects of the passing generation, but being young I thought it went, very much of it, over my head, as the saying goes. I saw men of genius—men who in their time had renown, glory, fat fees—in the gutter. They had gone the pace after the manner of the time, wasted their substance, and in old age depended upon relatives or the tender mercies of public charity. The list of derelicts is a long one.

But now in my sixties I see what is happening to my contemporaries, also men who have achieved much professionally, who in all reason should have amassed at least a comfortable competence for old age, going

down and down and soon out. It fairly makes me shudder, and the thought comes to me: "Is this, then, the inevitable end?" And it is far from always attributable to speed and drink and such, but more often just to plain lack of common business sense.

The men who have gathered in many sheckels and are comfortably well off in their old age are generally those whom the others have looked down upon, rather inartistic chaps, mostly acquisitive, knowing how to save money and invest it—fellows whom the rest of us have dubbed "archeetecks."

Now, why cannot the artistic and common sense be combined a bit? It has been done in other lines. Why must so many of us be buried by the county or by subscriptions raised amongst those yet producing?

So let us put our shoulders together and pull for greater business training, self-protection and the protection of future clients mixed up in proper proportion with the orders, period stuff, and the rest of it, and duly administered to the neophytes and postulants of our great and noble profession.

* * *

Repertoire in House Architecture Has Greatly Broadened

THERE are all too many to whom architecture is an impersonal, indifferent thing, even the architecture of the very houses they live in or which they expect to build, says Harold D. Eberlein, in Arts and Decorations, and continues:

"They are content either to leave their prospective home wholly to the architect—provided he keeps the cost within a certain figure—or else, if they feel called upon to play a more active part in the matter, their attitude is often so negative that one might fancy they had retained an architect merely for the malicious satisfaction of interfering with him at every stage of the game.

"Resuming architectural consciousness would be a reasonably simple process were it merely a matter of picking up the threads of our heritage where we laid them down in 1830, or thereabouts. But since that time other elements—and welcome elements they are—have entered in to complicate the situation. There are the Italian, French and Spanish modes that have gained a firm foothold, not only by reason of the cosmopolitan and eclectic tendencies that have grown up latterly in America, but also because of the manifest fitness of those modes in respect of climatic conditions, local environment, and ready adaptability. Besides these, there are certain traditional English types that had previously found no place in the architectural repertoire on this side of the Atlantic. And all of these modes are legitimate and meet for use in the domestic building program of today. Thus it needs no lynx-eyed scrutiny to discern how vastly the field of choice has broadened."

* * * *

Carpenter Apprentices Scarce

Not one of 300 school boys in Philadelphia responded when D. Knicerbacker Boyd, architect, asked how many intended to become carpenters. There were many, however, who signified their intention of becoming electricians. The electrical industry offers an interesting and attractive field for youth, but it is now pretty well overcrowded.

A Woman Who Sells Structural Steel

By NATHALIE GARFINKLE, in Commercia

"OPPORTUNITY did not knock at my door, but rather I went out and invited it in. That is why I am the only woman in the country selling steel."

Mrs. Jean Shassere of Terre Haute, Ind., did not sit back and "wait for things to happen"—she decided what she wanted to do, prepared for it, and made a success of her venture.

A woman selling structural steel! A decade ago this would have seemed preposterous. The "mechanical-minded" woman was made to feel ashamed of her ability. Tradition had laid down certain rules of conduct—which were considered unchangeable. Mechanics and its allied branches were reserved for man's participation—indeed, the woman who dared invade this sacred ground was treated as an outlaw to the clan.

With the war came a distinct change in the attitude towards a woman's ability to fill a man's place. Her worth has been proven.

But even in our day we are somewhat startled when we hear of a woman selling structural steel.

Contrary to all prescribed rules of success, Mrs. Jean Shassere's idea for her venture into this new field was not the result of hours of "deep thought," but, singularly enough, it emanated from a chance remark made by Dr. Philip Woodworth, president of the Rose Polytechnic Institute of Terre Haute.

"I had gone to Dr. Woodworth," says Mrs. Shassere, "for advice about obtaining a patent for a small mechanical device I had invented for use on street cars. And quite as a matter of chance he mentioned the new Rose Polytechnic buildings that were going up, and that they were unable to get steel fast enough for the work. Inquiring further, I found there were no steel companies here in Terre Haute, nor did any company have a representative here. After some talk on the subject, I asked Dr. Woodworth if he thought I could sell steel, and he said that after I had devoted some time to intensive study he believed that I could sell as well as anyone."

After spending several months in preparation for her new career, Mrs. Shassere wrote to the Gage Structural Steel Company of Chicago, hoping that they would let her represent them in Terre Haute. Their answer encouraged her to keep on with her work—and a short time later she was in the employ of the Gage Company.

Mrs. Shassere's work consists in looking up prospects, getting blue prints and specifications from architects, estimating the amount of steel needed, and then submitting a bid for the steel work. She does quite a lot of the estimating; in fact, she "takes off" all the smaller jobs, only sending the company the very largest plans that require a great deal of labor. Her work has attracted considerable attention, and as a result she now represents three separate companies, each with an entirely different line, but all building steel or iron.

Just here I became curious as to how she "broke into the game."

"What was the attitude of the 'old-timers' toward your venture?" I asked.

"It hasn't been smooth sailing since I took up this work," she replied, "for I had to start without any precedent—nothing to follow, not even encouragement from anyone—for I know that the people with whom I came in contact looked upon my venture as a great joke. It was a man's field, so why let a woman in?

"But after I had secured several good contracts I could see a difference in their treatment of me. Now I am accepted as one of them, asking no favors because of my sex, taking the knocks when they come, and making them realize that I am just as much in earnest as they are. My aim is not to take their business away, but rather to build up a business for myself."

* * *

When Bids Are Submitted

OWNERS apparently sometimes forget that it costs a contractor money to submit bids. They either do not understand or disregard the fact that there is expense connected with estimating a job and preparing a bid. The cost of estimating is part of the contractor's overhead. Someone has got to pay for this estimating. If the contractor is to make a profit he must perforce pass it along to the owner. If such expenses were to fall upon the contractor, he would ultimately be compelled to go out of business. If a contractor gets on an average one job out of every dozen he figures, the one job must pay the cost of figuring the twelve.

But while the contractor accepts this burden as part of his overhead, he should, in common fairness, have an equal opportunity with all others who figure it to get the job. If the owner, the architect, or the engineer supplies him with plans and permits him to figure the work, with the mental reservation that he won't get it anyway, they are not only doing the contractor an injustice, but they are increasing the cost of construction. Someone has got to pay for the added expense. The contractor must figure his next job a little higher to cover it. Perhaps the easiest course for the owner to take is to let any contractor who wishes to do so figure the job, while the owner clings to the solacing thought that probably the undesired contractor will not be the low bidder anyway, and eventhough he be low the owner cannot be compelled to give the job to him. Admittedly it is difficult to tell a contractor that his bid is not wanted, but that is the only fair course to take.

Even more to be deplored is the practice occasionally resorted to by owners of inviting a contractor to figure a job in order that his bid may be used to check the bid of some favored contractor, to whom the owner has the unexpressed intention of giving the contract. Sometimes such bids are wanted to serve as a club to induce some one to take the contract at a lower figure than he otherwise would. This practice was more common a few years ago than it is today. A contractor should never be asked to bid—should, in fact, never be permitted to bid—unless he has an equal opportunity to get the work with every other contractor who submits a figure.

Now comes forward a sub-contractor with a complaint—not a new one, but one that, if persisted in, is calculated to annoy the best-tempered sub-contractor. Suppose you are a sub-contractor, and you submit a bid to a general contractor upon which to base his bid. Suppose he accepts your bid, from among those submitted, and uses it as the one upon which he figures his bid. His bid proves to be the low one, and he is awarded the contract. Then suppose he goes around "shopping" for a lower bid on the sub-contract, and, obtaining it, throws your bid into the discard. General contractors who rigidly stick to the practice of giving the sub-contracts to the men on whose figures they based their bids, are putting the Golden Rule into practice in the conduct of their business.

Here's another practice that is unfair to the general contractor, says an exchange. It is that of taking entirely new bids, on slight revision of plans, in order to reduce the cost.

In one locality, we are told, the contractors filed a copy of their proposals with the secretary of their local organization, with the understanding that after bids were opened by the architect the figures thus filed would be available to every member, and no contractor other than the low bidder should submit additional figures on a modified bid, unless such modifications amounted to more than 50 per cent of the bid as originally filed.

In another case it is understood that the first, second and third lowest bidders only should submit bids on the revised plans. In a good many instances architects have suggested that only the lowest bidders on the original contract figure the revised plans, and owners have often acceded to it.

Any practice that has a tendency to reduce bids below the margin of safety is a bad one. It is bad for the owner as well as for contractors. Work done at a loss is usually not satisfactory.

* * *

Five Billion the 1923 Building Record

A SURVEY of the building industry which has just been completed by the Copper and Brass Research Association, places the total expenditures in this country during 1923 for all classes of building at $5,000,000,000. Approximately one-third of this amount will be expended for dwelling construction.

Industrial buildings follow with a total of $655,000,000 after which come office buildings with $645,000,000, hotels $640,000,000, and schools $610,000,000. Public buildings, hospitals and churches follow in the order named.

The details of the $5,000,000,000 expenditure for different types of building are as follows: Apartment houses $950,000,000, churches $205,000,000, dwellings $680,000,000, hospitals $230,000,000, hotels $640,000,000, industrial buildings $655,000,000, office buildings $645,000,000, public buildings $260,000,000, public garages $125,000,000, and schools $610,000,000.

In conclusion, the survey says: "Activity in the building industry has served greatly to assist in hastening the return of normal business conditions throughout the United States; for $5,000,000,000 translated into as much materials and labor, betokens a wide range of industrial activity.

"It is therefore reassuring to note that only a start has been made toward catching up on the accumulated building deficit, and that with increased construction of heavier types of building, even though there may be a somewhat smaller amount of residence construction, we may reasonably expect, during the next three years at least, considerably more than the normal pre-war building activity."

* * *

School Boards Should Heed This

The Wisconsin Industrial Commission recently said this to taxpayers who object to the cost of fireproof schools: "There are only two classes of buildings where attendance is involuntary—schools and jails. If the house or flat in which you live is a fire-trap, you are at liberty to move out. If you believe that a certain hotel or theater is unsafe, you need not patronize it. But if your school is in constant danger of becoming a fiery furnace, the law compels your children to attend, just the same."

The Riches of the Ruhr

By H. G. CARDOZO, in the London News

THE Ruhr Basin, which the French Government wishes to occupy as a guarantee that Germany shall at last make some real attempt to meet her reparations debt, is, curiously enough, a coalfield the discovery and the working of which was originally due to British money and brains.

One thousand square miles in extent, the Ruhr Basin has a present population of over 3,700,000, and its factories and coal mines turn out enough raw and finished material to supply 180 million tons of freight per year for its wonderful network of railways and canals.

When the British—Scottish and Irish engineers played a predominant part in the early development of the Ruhr—first came to the region, Essen was a small provincial town of 50,000 inhabitants; its population now numbers almost half a million.

The immense richness of the Ruhr coal deposits was discovered soon after 1871, and the Germans themselves attribute the main pride of this discovery to an Irishman named Mulvaney, who sank some of the most valuable shafts, which now, half a century afterwards, are producing a rich income for their new German owners.

New Scotland, Erin, and Hibernia are the names of some of the most famous mines, and they were so called by their original Scottish and Irish discoverers and owners.

It was only after a great financial crisis which swept over Europe in the 'eighties that the German magnates—Thyssen, Hanniel, Krupp, and Kirdoff—secured their hold on the great majority of the mines and factories of this huge industrial region.

Coal and steel form, of course, the two great riches of this much-discussed territory. It is estimated that the coal, which lies to a depth of 5000 feet, could be hewed and brought up at the rate of 100 million tons per year for 764 years before the mines are exhausted.

If the pits were sunk deeper than 5000 feet—and there are many mines which run much deeper—it is estimated that the same rate of production could be continued for another 674 years. In other words, the richness in coal of the Ruhr area is almost inexhaustible.

The figures of steel production available are not very recent owing to the fact that the German industrialists, for reasons best known to themselves, have, since the Armistice, been careful to hide them in a maze of errors and falsifications. The last reliable figures are those for 1918, when ten million tons of steel were turned out, or rather more than 68 per cent of the entire German production. In addition, the foundries of the region produced 40 million tons of crude or half-worked iron.

The factories engaged in working up this steel and iron into engines, machinery, tools, rails, and plates employ just under 1,000,000 h. p. There are 1,000,000 men, 15,000 foremen, and 5000 engineers engaged in the factories and foundries of the Ruhr.

* * *

The Best Architecture on the Pacific Coast

Complete announcement will be made in the March Architect and Engineer of a plan to award one or more cups, plaques or medals to the architect who, in the judgment of a jury, has designed the best office building, hotel, apartment house and commercial building on the Pacific Coast. The buildings must have been completed during the current year 1923, the awards to be made during the early part of 1924, when the selections will be published in an issue of this magazine. The prizes are to be donated by S. W. Straus & Company, San Francisco and New York City.

THE
Architect and Engineer
Incorporated
Founded 1905 by E. M. C. WHITNEY
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Fred'k W. Jones - Vice-Pres. and Editor
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Published Monthly in the Interest of the Architects, Structural Engineers, Contractors and the Allied Trades of the Pacific Coast by The Architect and Engineer, Inc.

PUBLICATION OFFICE:
627-629 Foxcroft Building, San Francisco
Telephone Douglas 1828

The publishers disclaim any responsibility for statements made in the advertisements of this magazine.

Terms of Subscription
(Including postage) to all parts of the United States, $2.50 per annum; to Canada 75c additional; to all Foreign points $1 additional

Vol. LXXII. FEBRUARY, 1923 No. 2

THE DANGER OF THE "OR EQUAL" CLAUSE

Ever since the phrase "or equal" was first invented it has caused trouble. Not all the time, to be sure, but in a large enough list of cases to demand the attention of architects and contractors who think, and who are determined that the building industry must be kept free from a class of parasites who are only too glad of any loophole which gives them an opportunity to line their own pockets by substitution of inferior grades of materials and supplies in those particular lines in which this can be done with impunity.

"Or equal" to an honest contractor means a quality equal in every particular to the specific brand specified as first choice. It is only when the specified brand cannot be obtained soon enough or in sufficient quantities, or some other obstacle stands in the way of its use, that this kind of contractor starts searching for an "or equal" brand. And his search is honest and conscientious. In the case of the dishonest contractor, however, the "or equal" phrase is used whenever possible to substitute an inferior quality or some brand from which he frequently receives a tidy rake-off.

For instance, in such items as plumbing fixtures, it is impossible for anyone, even the most expert, to tell the quality of the fixture by an outward examination. With such things as plumbing fixtures, the quality is "built in" and practically invisible from the outside. You know it is there because of the reputation of the manufacturer for high quality and the reputation of the fixtures over many years of use. A far inferior fixture can be made to look just as good on the outside. Its finish may be perfect and general construction apparently all right, but in actual use some discrepancy in construction or design will appear, and it will create dissatisfaction.

It seems that the only sure remedy for this condition, and one which if adopted would immediately clear up all chances for the "or equal" evil to creep into the building industry, would be the entire elimination of the clause and the absolute specification by the architect of the brand or kind of material or supplies without qualification. In cases where the contractor could not obtain the specified article, it should be made necessary for him to obtain a new specification from the architect.

In cases where the contractor is honest, this would work no hardship. In the other cases, it would cure a bad situation which now exists to a noticeable extent. It would be seldom that the architect

would be called on for a substitute specification, and he would far rather take the time to make a new specification than to have the completed job unsatisfactory and a blur upon his reputation. N.W.S.

SIMULTANEOUS PLANS FOR HOUSES AND GARDENS

When planning to build a new house, few owners consider anything more than the cost of the home and the land. They might be assured of a much happier or more satisfactory final picture if they would resolve at the outset that a reasonable proportion of their total investment should go into a garden well planned, constructed, and planted with good materials which might express their own personalities and at the same time enhance the architectural merit of the house. In the case of private estates, even if few acres are intensively landscape developed, the costs may conservatively be at least ten per cent of the total expense. This would include plans, supervision and labor, loam, manure, plants, garden ornament and the construction of pools, walls, steps, and all other garden features.

The attainment of beneficial and gratifying results requires as high a quality of ability and training in the theory of design, in the case of the garden as in that of the house. It is rational to conceive that the technical training of a professional landscape architect will give to his work a higher degree of excellence in this essential respect than that of the nurseryman or the neighborhood gardener—even as the creation of a reputable architect is superior to that of a contractor and builder. We shall have better gardens and more inviting towns, cities and country estates when this truth is fully appreciated.

We are taught daily by all manner of propaganda the value of organization and co-operation. Yet how few ever think of applying these principles to garden and home building. Calculations, photographs and all data pertaining to the new garden should be assembled early and to prepare careful drawings for a garden in advance is just as important as for the house. It is an exceedingly rare occurrence for an owner to call into a conference the architect and the landscape designer when the site and orientation of a house are to be decided upon. Some of the most serious difficulties of the landscape expert arise because of the lack of a mutual understanding, and in almost all cases a joint discussion among the three would result in the best possible solution of the problem.

EMERSON KNIGHT.

AMERICA PLANS GREATEST BUILDING PERIOD

AMERICAN building activity during 1923 will surpass all previous records with an estimated total expenditure of $5,000,000,000, according to reports from architects, contractors, and manufacturers of building materials.

It means that the 1922 volume will be exceeded by more than one billion dollars.

Tables prepared by The Architectural Forum from compilation of replies from 1767 architects show that builders have carried their operations through the winter, maintaining an almost steady line from the heavy demand of the fall and winter months of 1922.

Dividing the total estimate in general groups it is seen that plans for schools, colleges, and similar public structures lead the list with $870,034,000. Apartments are next with $662,885,000, and industrial buildings are third with $548,037,000.

An interesting comparison is shown in the total for dwellings, which is $414,132,000, almost as great as the total for offices and also for hotels.

Similar activity of vast proportions is planned by railroads. Actual budget figures for 31 roads, controlling 40 per cent of all trackage in America, call for the expenditure of $387,000,000. Estimates by the Railway Age place the total cost of all rail improvement and construction at approximately $900,000,000 during 1923.

ARE THEY BUILDING TOO HURRIEDLY IN LOS ANGELES?

The following comment appears in the National Building Survey for January, published by S. W. Straus & Co., well-known financial brokers, whose operations extend from coast to coast. Coming from such eminent authority, it might be well for Los Angeles to take heed and exercise a more watchful attitude toward owner and contractor, who in too many instances seem disposed to save architect's fees by building houses of flimsy material, and without due regard to their structural design. To quote from the Straus publication:

"There has been a considerable volume of residential building in Los Angeles the past year, consisting of separate two-story houses and quadruple apartments, to meet an unprecedented demand due to a phenomenal increase in population. Many of these buildings have been hurriedly constructed, and are consequently destined to depreciate rapidly."

ARCHITECTURE 100 YEARS FROM NOW

Mr. Thomas Hastings, distinguished Eastern architect, in a symposium recently published by the San Francisco Chronicle of what we may expect 100 years from now, pictures the building of edifices of stateliness and power, such as we have only dreamed of. To quote Mr. Hastings:

Architecture expresses the life of each period. Will life a hundred years hence be freer, cleaner, saner? Inevitably the architecture of 2022 will register that. Will civilization relapse, perhaps through the medium of another world war, into semi-barbarism? Then barbaric will be the architecture of that time.

There is this much to be said: Steel construction frees architectural design from limitations which masonry necessarily imposed. Thus far the result has been confusion—the one and only real confusion that has ever occurred in a continuous historic succession of architectural developments.

Granted a broadened intellectual horizon (and the probability of revolutionizing inventions—even the discovery of forces which we know nothing about now), the architects of 2022, we can imagine, will be busying themselves with edifices of a stateliness and power such as we have only dreamed of hitherto.

BOOK REVIEWS

Edited by
CHARLES PETER WEEKS

THE PLANNING OF THE MODERN CITY. By Nelson P. Lewis. Published by John Wiley & Son, Inc., New York.

"The Planning of the Modern City" is the second edition revised of his original book issued in 1916. It is dedicated to the municipal engineers of the United States, and approaches the subject from the engineering point of view. Therein it is in striking contrast to other books on the subject, as most of them have been written by so-called city planning experts who have as a rule been recruited from the architect class.

Mr. Lewis' book has chapters on the general "Movement of City Planning," the "Corrections of Mistakes in City Planning," and the "Elements of a City Plan," but its main value lies in the broad practical grasp of the subject as expressed in chapters on the "Economic Value of a City Plan," "Street Traffic," "The Railroad in Its Relation to the Street System," "Zoning," "Financing a City Plan," and "Municipal Land Policies."

There are numerous illustrations of the subject by means of photography, diagrams, plans, and aeroplane views. The subject is thoroughly covered by one who has given it long study, with the intelligence of the carefully-trained engineer who has vision and an appreciation of the real points of the problem of city planning.

This book will be of great value to all city engineers, city and state legislators, to all architects who have the larger things of life at heart, and should be in every reference library.

With the Architects

Building Reports and Personal Mention of Interest to the Profession

Civic Center Buildings

Plans are maturing for two additional buildings to be erected in the San Francisco Civic Center. One is to be the War Memorial, which will be designed by Architects Bakewell & Brown, 251 Kearny street, and the second structure will be a Municipal Opera House designed by Willis Polk & Company. The city is now arranging to take over property bounded by Van Ness avenue, Franklin, McAllister and Grove streets, as a site for the War Memorial. The Architectural Advisory Council, which has charge of the placing of the new buildings, together with all preliminary work, is composed of Messrs. Bernard Maybeck, chairman; Willis Polk, Arthur Brown, Jr., John Reid, Jr., John Galen Howard, Ernest Coxhead, G. A. Lansburgh, and Frederick H. Meyer.

Granted Certificates to Practice

The State Board of Architecture, Northern District, has granted certificates to practice architecture to the following:

F. Eugene Barton, 1122 Crocker Building, San Francisco.

Charles F. B. Roeth, 2520 Hillcourt, Berkeley.

Perry Thomas Poage, 727-22nd street, Sacramento.

Leffler B. Miller, 1807 Markham Way, Sacramento.

Henry Temple Howard, 500 First National Bank Building, San Francisco.

Henry Charles Collins, 500 First National Bank Building, San Francisco.

Santa Barbara Masonic Temple

Architect Carl Werner has been commissioned to prepare plans for a $250,000 Masonic Temple at Santa Barbara. Mr. Werner is completing plans for a similar building in San Jose, and has recently awarded contracts for a splendid new home for the Masonic Order in Bakersfield.

Extensive Alterations

Plans have been prepared by Architect August Nordin, Mills Building, San Francisco, for extensive alterations to the four-story brick building at Powell and O'Farrell streets, San Francisco, for the Regan Estate. The estimated cost of the work is $125,000.

Credit Due Los Angeles Architects

In showing a perspective of the Al Malaikah Temple, to be built in Los Angeles, in the November number of the Architect and Engineer, the name of Mr. G. Albert Lansburgh was given as the architect and Messrs. John C. Austin and A. M. Edelman as associates. The caption should have read: "John C. Austin and A. M. Edelman, associated architects, and G. Albert Lansburgh, collaborating architect." When plans are further along for this building, the drawings will be shown in detail in this magazine.

Brothers College at Los Altos

A contract has been awarded to James L. McLaughlin, 251 Kearny street, San Francisco, and construction is under way, for the first unit of the College of St. Joseph of Cupertino, near Los Altos, Santa Clara County. Building will be four stories and basement and constructed of reinforced concrete. Plans are being completed by Architect Leo J. Devlin, Pacific Building, San Francisco.

Hotel for Sonoma County

A corporation has been formed under the name of the Sonoma Mission Inn by San Francisco business men for the purpose of building a tourist inn on the Bigelow Ranch in the Valley of the Moon, Sonoma. Besides the hotel, there will be a clubhouse, natatorium, golf links, etc. The project will cost $750,000. Construction will be in charge of Messrs. Lange & Bergstrom.

Temple Emanu-El

Messrs. Sylvain Schnaittacher and Bakewell and Brown, associated architects, have been commissioned to prepare plans for the new temple Emanu-El, Arguello Boulevard and Lake street, San Francisco. Mr. G. A. Lansburgh and Mr. Bernard Maybeck will act as consulting architects.

Architect Weeks Married

Architect Chas. Peter Weeks, of the firm of Weeks & Day, San Francisco, was married January 30th to Mrs. Beatrice W. Mills in Calvary Presbyterian Church, San Francisco, the Rev. Ezra A. Van Nuys officiating. Mrs. Weeks is the daughter of Mr. and Mrs. John S. Woodruff of New York City.

Oakland Apartment Houses

Architect Clay N. Burrell, First Savings Bank Building, Oakland, reports an unusual amount of apartment house work in his office, including a three-story glazed brick building to be built on 21st street, near Harrison Boulevard, for Mr. M. S. Sommarstrom, to cost $60,000; a six-story steel frame store and apartment building at 23rd street and Telegraph avenue, for Mr. Fred McMann, to cost $55,000; alterations to the three-story hotel on the east side of Washington street, between 7th and 8th streets, for Mr. J. Meyers, of Los Angeles, to cost $25,000; and an Egyptian Theatre and 32 small stores on Grand avenue, Oakland, estimated to cost $250,000.

Architect Baumann Busy

New work in the office of Architect H. C. Baumann, 251 Kearny street, San Francisco, includes a three-story reinforced concrete apartment house on Jackson street, between Divisadero and Broderick streets, for Dr. John J. Kingswell, to cost $60,000; a three-story brick veneer apartment house at Filbert and Polk streets, San Francisco, for M. Vukicevich, to cost $50,000; three store and apartment buildings in the Richmond District for Mr. Jacob Weissbein, and a number of residences in Burlingame.

Occupies Larger Offices

Architect Frederick W. Quandt has moved from the Monadnock Building to more spacious offices in the Humboldt Bank Building, San Francisco. New work in Mr. Quandt's office includes a ten-story Class A community apartment house to be built in Broadway, between Octavia and Laguna streets, San Francisco, at an estimated cost of $200,000. Mr. Quandt has just let a contract for approximately $16,000 for two flats on Dolores street, near Market, for Mr. and Mrs. Laubscher.

Modesto Junior College

Architect W. H. Weeks, 369 Pine street, San Francisco, has completed plans for the first unit, consisting of a science and classroom building, of a Junior College for the City of Modesto. The plans will go out for bids early in March. The first building will cost $110,000. Mr. Weeks has also completed plans for a high school building at Esparto, Yolo County, and for the first unit of a school group at Hollister.

School Bids Rejected

All bids taken for the construction of eight school buildings in the Sacramento High School group have been rejected, and Messrs. Mathews & Simpson, the architects, have been instructed to revise the plans.

Form Partnership

Messrs. A. J. Fabre and Ernest H. Hildebrand have formed a partnership for the practice of architecture, with offices in the French Bank Building, San Francisco. The firm has been commissioned to prepare plans for a four-story and basement Nurses Home and a two-story Maternity Pavilion at Anza street and Sixth avenue, for the French Hospital Association. The same firm has completed plans for a three-story frame apartment house on Pine street, east of Jones, for Mr. J. Collins, to cost $20,000.

Veteran Hospital Buildings

Revised plans are being made by Architect Matthew O'Brien, 621 Foxcroft Building, San Francisco, for the U. S. Veterans' Hospital at Livermore, Alameda County. The drawings are expected to be completed and new bids advertised early the coming month. The total cost of the hospital group will be $1,600,000. Bids previously taken ran as high as $2,159,000.

Sutter Street Apartments

Plans have been prepared by Architect A. H. Knoll, Hearst Building, San Francisco, for a two-story and basement frame and stucco apartment house to be built on the north side of Sutter street, east of Divisadero, San Francisco, at an estimated cost of $85,000. There will be twenty-five apartments, all with outside exposure.

Moves to Santa Ana

Mr. H. Newton Thornton, who has been practising architecture for some time at Idaho Falls, Idaho, has moved to Santa Ana, where he has taken offices in the Hill Building. Mr. Thornton specializes in schools and hospitals. He is anxious to receive catalogues and samples from manufacturers and building material dealers.

To Complete St. Patrick's Church

Plans are being prepared by the Gorman Company of New York, and a contract has been let to Messrs. Grace & Bernieri, Claus Spreckels Building, San Francisco, for the completion of St. Patrick's Church on Mission street, between 3rd and 4th streets, San Francisco, at an estimated cost of $500,000.

Has Much Residence Work

Mr. Alvin J. Stern, 742 Market street, San Francisco, reports that his office has under construction fourteen residences and flats, in addition to six other dwellings for which plans are in course of preparation. Mr. Stern says the aggregate value of this work is close to $250,000.

Washington State Society of Architects held its annual meeting on December 7th, 1922, with an attendance of architects from all over the state. The following members were elected to hold office for the ensuing year:

Messrs. Julius A. Zittel, of Spokane, president; Edgar Blair, of Seattle, first vice-president; Wm. J. Jones, of Seattle, second vice-president; Watson Vernon, of Aberdeen, third vice-president; T. F. Doan, of Bellingham, fourth vice-president; Emil Guenther, secretary-treasurer; H. Ryan and H. G. Hammond, trustees.

The board of trustees is now composed of the following members: Messrs. Julius A. Zittel, Emil Guenther, Harry H. James, Clayton D. Wilson, H. Ryan, H. G. Hammond.

Sacramento Architects' Club

The new quarters of the Sacramento Architects and Engineers Club were opened in Sacramento January 5th, at 910 Ninth street. A program of speeches on the objects of the organization and matters of civic interest relating to architectural and engineering subjects, together with a radio concert and musical numbers, followed by a banquet, were features of the evening.

The officers of the new club are as follows: Messrs. George J. Adams, president; George J. Calder, vice-president; J. E. Tempest, secretary; L. F. Starks, treasurer; and Messrs. T. E. Stanton, R. A. Herold and G. D. Godfrey, directors.

Lectures on Architecture

The Kansas City Chapter has been giving a series of lectures on Sunday afternoons at the Art Institute. The first ten were composed of lectures on the home, covering the small house, its plan, design and furnishings. The second series will treat with building industries and architecture as an art.

Water Company Office Building

Plans have been completed by Architect J. W. Dolliver, Monadnock Building, San Francisco, for a two-story reinforced concrete and terra cotta office building to be built in San Rafael for the Marin Municipal Water District. The structure is estimated to cost $70,000.

War Memorial

A competition for a $2,000,000 War Memorial for the City of Indianapolis has been announced. The drawings are required March 15th.

Seattle Architect Moves

Mr. Charles H. Alden, architect, of Seattle, has moved to 624 South Norton avenue, Los Angeles, for the time being.

Personal

Mr. George M. Lindsey has opened offices for the practice of architecture and engineering in suite 327-331 Homer Laughlin Building, Los Angeles. A branch office will be maintained at Glendale. Mr. Lindsey is associate architect with Mr. John C. Austin on the Glendale high school and for the grammar school and high school buildings at Chino.

* * *

Mr. L. M. Hill, for a number of years superintendent of construction for C. A. Fellows, of Los Angeles, who has erected many railroad structures in the west and southwest, has resigned that position and has joined the organization of the Scofield Engineering Construction Company of Los Angeles.

* * *

Architect Arthur R. Hutchison has opened an office for the practice of architecture at 1302 Van Nuys Building, Los Angeles.

* * *

Architect Fitch H. Haskell has moved to 65 North Raymond avenue, Pasadena, where he will be associated with Architect Cyril Bennett in the practice of the profession.

* * *

Mr. Morton A. Williams has formed a co-partnership for the practice of architecture with Mr. Ralph E. Wastell, under the firm name of Williams & Wastell, with offices at 601 American Bank Building, Oakland. Manufacturers' catalogues are requested. Mr. Guy L. Brown, architect, is also located at the same address.

* * *

Mr. William F. Evans, formerly of Seattle, has been transferred to the New York Chapter, as he is now residing in New York City.

Competition for Municipal Building

Plans will be announced shortly by the Civic Planning Committee of Buffalo, N. Y., for a competition, open to all architects in the United States, for the best design for a new municipal building, to be erected on the west side of the Civic Center, Buffalo, N. Y.

Long Beach Hotel

A contract has been let by Architects Curlett & Beelman, Union Bank Building, Los Angeles, for a Class A store, apartment and hotel building on East Ocean avenue, Long Beach, for the El Bolivar Holding Company, to cost $1,250,000.

Gardens for Four Homes

Mr. Emerson Knight, landscape architect and engineer, 704 Market street, San Francisco, has completed plans and planting for the gardens of four houses built by Allen & Company on 28th avenue, north of Lake street in Sea Cliff, San Francisco.

With the Engineers

An Engineer's License Law for California

By GEORGE D. WHITTLE
Member Public Affairs Committee, San Francisco Chapter, American Association of Engineers

LICENSING is the outstanding feature of legislative enactments affecting engineers during recent years. The fact that nineteen states now have laws regulating the practice of professional engineering and that two-thirds of these laws have been passed within the last two years, indicate the growing sentiment towards such legislation. The American Association of Engineers has probably been more instrumental than any other organization in securing passage of the laws in these nineteen states, and has succeeded in crystallizing sentiment favorable to them in other States.

The public affairs committee of San Francisco Chapter of the Association, realizing that action would doubtless be taken toward passing a license law in California, undertook a detailed study of the license laws now in effect in the various states, weighing the good and bad features of each as well as the arguments advanced pro and con regarding them. A Bill has been framed, and it provides for the creation of a State Board of Engineering Examiners, with powers not dissimilar to those possessed by the State Board of Architecture.

The purpose of a license law should be either (1) to protect life, health and property by establishing minimum qualifications for those desiring to practice engineering, or (2) to raise the standing of the engineer in the eyes of the public by defining the profession and giving it a legal status. At least eleven of the present laws give the first of these—the protection of life, health and property—as their specific purpose, but a study of the minimum requirements as tabulated might cause one to question their effectiveness in carrying out their purpose, and to conclude that the real purpose of those securing their passage was the more selfish one of raising the standards of their profession by giving it a legal status.

Opponents of licensing point to certain provisions in existing laws to prove their contentions that these laws do not accomplish their intended purpose. It must be admitted that in some cases their contentions are valid, because the qualification requirements are very low. This low standard, however, is due to the necessity of preventing undue opposition to the proposed measure, and during the pioneering stage a great many compromises need to be made, with the result that the bill as enacted may be far different from the one proposed.

The committee has realized that with the passage of the laws in these nineteen states, and with a knowledge of similar laws affecting architects and surveyors in still other states, the engineer and the public generally more fully recognize the advantage of such laws, and that higher standards can be incorporated in the proposed California bill than in any yet passed without fear of raising too much opposition from members of the profession. The national legislative committee of A. A. E. has drafted the so-called A. A. E. model law (see Professional Engineer, September, 1922), and this has been used by the local committee as a model in drafting the California bill. The bill is not claimed to be perfect; probably many changes should be made; but it does offer something concrete on which to work. If a bill is to be presented before the 1923 session of the Legislature with any assurance of its passage, it must have the support of engineers and engineer organizations throughout the state.

A bill to license engineers was introduced in 1919 by Senator Breed at the request of its sponsors. It was based on the bill prepared in 1915 by a joint committee of the founder societies. When the senator found that the sentiment among engineers themselves was not unanimously in favor of it he failed to push it and it died.

Engineering Service for Contractors

Appointment of an engineer to assist the members of the Contractors Association of Northern California is under consideration by the board of directors. Several applications for the position have been secured. Establishment of an engineering and accountant bureau was recently authorized by the association.

The duties of the engineer in a general way will be as follows:

(1) To check over specifications and contract forms so as to bring to the attention of the members interested conditions and requirements

therein which may work to their disadvantage. (2) To make field examinations and reports covering all important road jobs coming up for bids, including sources of materials, etc., which will be available to all members. (3) When contracts are awarded to members to cross section work where necessary to otherwise check the figures and estimates of the engineers before, during and after construction. (4) To serve as engineering consultant to the members in a general way, and particularly in disagreements or disputes, and (5) to represent the association at conferences or hearings where expert engineering opinion is required.

The board decided to defer the appointment of a cost accountant until an engineer had been selected.

The duties of the cost accountant will in general be: (1) To canvass and inspect the accounting systems now in use by the members and others and to familiarize himself thoroughly with the best cost estimating and accounting systems now in use. (2) To prepare a cost estimating and accounting system which shall be elastic and which shall contain the best features of the best systems now in use, and which can be adapted to use by any class of contractors or any class of work regardless of the amount of their annual business, and (3) to assist in securing the general adoption of this system by members and by other contractors and to install and oversee the installing of such system for members and other contractors who may desire to have such perfected system installed.

Mr. A. J. Fairbanks has been re-elected president and Mr. W. A. Bechtel has been re-elected vice-president of the association for the current year.

American Societys' Annual

The annual meeting of the American Society of Civil Engineers was held in New York City January 17th, 18th, and 19th, and was largely devoted to discussions of Education, Research, and City Planning. On the evening of January 18th Mr. Julius H. Barnes, President of the Chamber of Commerce of the United States, delivered an address on Transportation Keyed to Production.

During the morning session of January 17th prizes and medals were awarded to members for excellence in papers published by the Society during the past year, and honorary membership was conferred upon the following distinguished engineers: Messrs. Leon-Jean Chagnaud, Paris; Sir Maurice Fitzmaurice, London; Clemens Herschel, New York City; John F. Stevens, New York City; and William Cawthorne Unwin of London. Another feature of the meeting was an all-day excursion on Thursday, January 19th, to the plant of the Bethlehem Steel Company, at Bethlehem, Pa.

Concrete Road Tests

Mr. W. J. Schmidt, contractor, of Berkeley, who was sent as a special delegate of Governor Richardson to the annual meeting of the American Congress of Good Roads at Chicago, reports that at the convention some interesting tests were made to show that concrete roads are not durable unless they have a covering of asphalt. It was also found, he said, that reinforced concrete is no stronger than the ordinary variety, when used on highway work.

Westinghouse Company to Build

Since the announcement went out that the Westinghouse Electric and Manufacturing Company is planning a new plant on its property at Emeryville, Western architects have been wondering who the designers of the building might be.

For the past ten years much of the architectural work for the Westinghouse Company has been done by Mr. Bernard H. Prack, of Pittsburgh, Pa, and he will be in charge of the Emeryville plans.

Mr. Prack is one of four brothers, all members of the firm. One brother, Mr. W. G. Prack, is located with his brother in Pittsburgh, while the other two, Messrs. A. E. Prack and Fred Prack, are at Toronto and Hamilton, Canada, respectively. The firm also maintains an office in Chicago.

This firm has designed a dozen plants and large buildings, among them the large appliance factory at Mansfield, Ohio, and the office buildings of the Canadian Westinghouse Company at Hamilton, Ontario.

New Fire Retardent Paint

After years of scientific research on the part of Mr. Fernando Somoza Vivas, patents have been granted to the Fire Retardent Products Company of Oakland, who are now manufacturing a triple purpose paint—a paint that not only preserves the surface and protects against fire, but beautifies.

"Retardo" (trade name) is manufactured in all colors and for all purposes from pure linseed oil, lead, zinc and mineral colors. It has been tested in every conceivable climatic condition during the past three years, and has stood the experiments. "Retardo" costs no more than ordinary paint.

An interesting demonstration was recently given in Los Angeles. Two small houses were built six feet apart, and one was painted with ordinary linseed oil paint and the other with "Retardo." The buildings were filled with excelsior saturated with coal oil and were set on fire simultaneously. The building treated with ordinary paint burned to the ground in twenty minutes, while the one painted with "Retardo" did not catch fire even after a second attempt. The heat was so intense it melted the glass in the windows of the building. This test resulted in the Fire Department and the Fire Prevention Bureaus endorsing and recommending "Retardo."

A similar demonstration will be given in San Francisco in the near future, and architects and builders will be notified of the time and place. The plant of the Fire Retardent Products Company is located at 2838 Hannah street, Oakland. Mr. A. J. Schmidt is vice-president and sales manager and Mr. Wm. Farnsworth is secretary.

How the Second Largest Stadium Was Weighed

HERE is a picture of the second largest "and finest" football stadium, and a picture of the Toledo scale which weighed it.

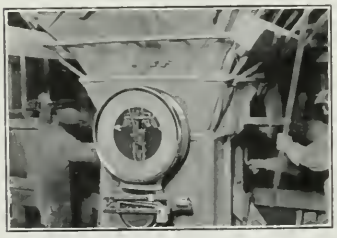
The stadium is that of the Ohio State University at Columbus, Ohio, which was recently completed. Another picture shows the stadium in course of construction. The structure has a seating capacity of 70,000.

The 155,000,000 pounds of concrete used were weighed over the one Toledo 800-type scale shown in the accompanying picture. The scale was located in one spot. A special hopper was built and permanently located on the scale, which was correspondingly back-weighted by means of the poises on the tare and capacity beams. Any change in the weight of the hopper which might take place,

OHIO STATE UNIVERSITY STADIUM, COLUMBUS, OHIO

The stadium was built on a cost plus basis, and the college authorities stipulated that the cement and stone to form the concrete should be actually weighed so that definite figures might be provided as to the amount of material used. The contractors were inclined to demur on the ground that the weighing would slow up the work, maintaining that so much more concrete could be poured without weighing, that the saving in time would more than offset anything that might be gained by a strictly accurate checking of the material.

The contractors evidently had a beam scale in mind, for when Mr. C. N. Stafford, Columbus agent for the Toledo Scale Company, got on the job and showed how the weighing could be done over a Toledo automatic scale, this objection was removed, and both the college authorities and the contractors were thoroughly satisfied.



WEIGHING THE CEMENT AND STONE ON A TOLEDO SCALE

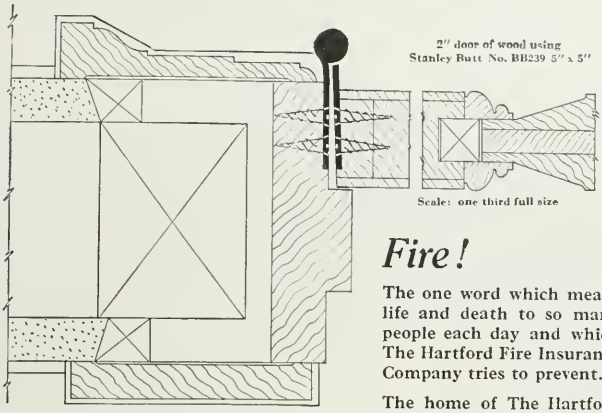
due to the accumulation of material in the cloth which joined the chute to the hopper, was very readily compensated for by shifting the poise on the tare beam.

The cement and stone were hoisted to bins above the chute. One-half of the chute was connected with the bins containing cement and the other half with the bins containing stone. One workman let in the stone, as indicated in the picture, until the scale showed the exact quantity required. Then he shut off the flow and another workman let in the cement to the required quantity.

The stone and cement then were dropped to the mixer immediately below, where the water was added and the mix made. Thus the material was all weighed dry.

It was found that instead of delaying operations, the weighing process over the Toledo really facilitated them, because the work never had to be slowed up to find out whether there were the proper proportions of cement and stone in the mix. The visible automatic indication settled that question beyond doubt, and the work could go right ahead without interruption.

This is descriptive of only one of the many apparently difficult weighing problems which have been solved by the industrial scale experts of the Toledo Scale Company. The Industrial Sales Department of the Toledo Scale Company in San Francisco is ready to co-operate with architects and construction engineers in connection with anything pertaining to industrial weighing problems.



Fire!

The one word which means life and death to so many people each day and which The Hartford Fire Insurance Company tries to prevent.

The home of The Hartford Fire Insurance Company, Hartford, Connecticut, is equipped with

Stanley Ball Bearing Butts

For permanency standardize on Stanley

Stanley No. BB239
5" x 5" Wrought
Steel Ball Bearing Butt,
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Field of the Contractor

Associated General Contractors of America Convene in Los Angeles

THE fourth annual convention of the Associated General Contractors of America opened Monday, January 29th, at Los Angeles, with the registration of members and guests at the general headquarters, Hotel Clark.

The first business of the convention was the meeting of the executive and advisory boards Monday morning. On the afternoon of the same day there was a reception for delegates and guests in the ballroom of the Clark.

Monday evening was occupied with a dinner at Los Angeles' beautiful new University Club for members of the executive and advisory boards of the executive staff and A. G. C. Chapter presidents. Wives of the men dining at the club were entertained at a dinner at the Mary Louise Tea Room.

Tuesday afternoon the ladies attending the convention were guests on an automobile trip through Pasadena and the foothills of Los Angeles environs and at tea. That evening they attended a theater party, while the men were entertained at a Bohemian night at the Los Angeles Athletic Club, with boxing, wrestling, jui jitsu, and fencing on the program.

Tuesday night's session of the convention was opened with an invocation by Right Rev. Dean William McCormack, after being called to order by President Arthur S. Bent. Mayor George E. Cryer welcomed the delegates to Los Angeles, and Sumner Sollitt of Chicago delivered a eulogy of the late W. E. Wood, who was to have been the 1923 president of the A. G. C.

The annual address of the president, Mr. Arthur S. Bent, was the first business on the program. Calling attention to the fact that Los Angeles building permits last year ran to more than 120 millions of dollars, President Bent declared that when he was a boy he herded cows on the spot where he then was speaking. Development of Southern California from "El Pueblo de Nuestra, la Reina de Los Angeles" (the sonorous Spanish title with which the city was christened) to a modern industrial community manufacturing more than a billion dollars worth of goods a year President Bent ascribed to "our industrial freedom." He said: "For 25 years we have maintained it without a break. Every workman in the land, union or nonunion, knows that here he is assured of his opportunity to work where and when he will without interference. Every employer and investor is assured of his opportunity to conduct his own business in his own way, without interference. We are not against unions. We are for industrial freedom and that individual 'fair chance' which Secretary Hoover declares is today the sole gamble of further human progress."

Membership of the association shows an increase of more than 50 per cent for the year, Mr. Bent declared. It is now about 1500.

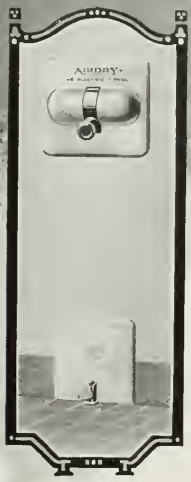
Mr. D. A. Garber presented a report of the committee on Investigating War Indictments and Suits.

Next came the annual report of the executive board, rendered by Mr. R. C. Marshall, Jr., general manager.

The afternoon session was called to order at 2 o'clock by Mr. A. P. Greensfelder. First came the annual report of the treasurer and finance committee, rendered by Mr. E. G. Holladay, and followed by the annual report of the membership committee.

Every contractor has two unwitting partners, Guy Leroy Stevick, vice-president of the Fidelity & Deposit Co., told the convention—his surety and his banker. The actual average net profit of the contractor is but little more than 5 per cent, though usually figured as twice that, Mr. Stevick said. "And I believe you will agree that the surety who gets one and a half per cent of the contract price has a sufficiently substantial interest in the profits to be called at least a limited partner," he said. "Then I think that experience would show that the average contract is financed outside of the actual capital of the contractor to about the amount of the reserve percentage—say an average of 15 per cent. That means at 7 per cent interest a charge of something more than one per cent of the contract price. So that we have as the possible interest of the three a matter of between 5 and 10 per cent for the contractor and two and a half per cent divided between the banker and the surety.

Associated Students' Building
University of California
John Galen Howard
Architect



On the Campus at U. C.

AIRDRY, "The Electric Towel," has served the University of California since August, 1921. Additional installations were made in April, 1922, and now the Associated Students Building, recently completed, has been fully equipped with this modern towel service.

"The Electric Towel" provides 100 per cent Sanitation and 60 per cent new Economy for U. C., as well as many other noted colleges and schools of America.

AIRDRY, "The Electric Towel," is a simple appliance which dries the hands nature's way, by evaporating moisture. It removes litter, lessens fire hazard, and reduces overhead. Specify Airdry for Sanitation and Economy.

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Company of California

Pacific Coast Distributors

155 Montgomery St., San Francisco

"Thus three interests are vitally interested in the venture."

Following Mr. Stevick's address came the reports of the legislative and publicity committees and a lengthy discussion of the usefulness of the association periodicals.

The third day's session of the convention was opened with Mr. Frederick Cranford of New York, vice-president, in the chair. First on the program was the annual report of the Committee on Ethics, followed by an address by Mr. E. J. Mehren, editor of the Engineering News-Record, whose able and impressive presentation of his topic "The 'Skill' Element in the A. G. C. Slogan," brought the convention to its feet in applause.

A condensed version of Mr. Mehren's speech follows:

"The element which distinguishes the contractor from other business men of integrity and responsibility is his skill in construction. Thus far in the life of the Associated General Contractors it has been advisable to stress chiefly the elements of integrity and responsibility. The Association now needs to place equal stress on mobilizing the technique of construction. It must build up a volume of data on cost and methods of doing work that will help to eliminate the guess in estimating construction work.

"Such a collection of data, made available not merely to the members of the A. G. C. but to all contractors, would tend to lessen the number of bidders who proceed on their ignorance, and not only lose money themselves and cause loss and dissatisfaction to owners, but force many reputable contractors to low bidding and disaster.

"The Association has already done excellent work in helping solve the contractors' internal problems. The Committee on Methods, through its standard estimating sheet, its model financial statement, its rates of depreciation, etc., has been of invaluable aid in forcing contractors to learn their true costs. What I am urging is a very broad extension of the work of your Committee on Methods, of a thorough introspection, so that the skill of the contracting profession may be developed to the utmost, and that the A. G. C. may pride itself as much on the skill of its members as it now does on their integrity and responsibility.

"In addition to the inquiries already conducted by your Committee on Methods, there needs to be thorough going study of methods of construction, their applicability and limitations; of management as applied to construction operations; of the elements of cost of the more usual construction operations. Studies

ARCHITECTURAL HOME MAKING

THE attractiveness of home life begins in the drafting room. Long after the fee is paid and forgotten, the thoughtfulness of the architect is remembered.

It is notable how many sun parlors are added to houses long after they have been built. It is but the addition of something which had been forgotten.

There is an ever-increasing trend "sunward," towards the enjoyment of sunshine and air made possible by the judicious but liberal use of better window glass. Cater to the "sunward" movement and reward will follow. Principles of health, sanitation and human happiness will have been recognized.

The Mark on the Box

The long ellipse that appears on every box of genuine American Window Glass is an assurance of quality.

Within the ellipse is the grade mark, A or B. The B glass is of as consistently high quality as the A grade of ordinary glass, and *our* A grade is correspondingly superior. Demand the beauty, clarity, evenness and strength assured by this mark on every box.

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AMERICAN WINDOW GLASS CO
GENERAL OFFICES PITTSBURGH, PA. BRANCHES IN PRINCIPAL CITIES

The Ornamentation on the Vase and Plaque was
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KENNEDY VALVES

mean satisfied clients

Kennedy Products for Domestic Heating and Sanitary Lines cost no more than ordinary equipment, cause no trouble after being installed, stand more rough use, and last far longer. A few of the Kennedy types are illustrated: The Kennedy Radiator Valve, made straightway, angle, offset, corner, etc., with or without unions; the Kennedy All-Bronze Gate Valve, one of the particularly popular Kennedy types; and the Kennedy Pennie Backwater and Sewer Gas Valve, a sanitary and positive protection that should be on every waste pipe.

The entire Kennedy line of 600 different types & sizes is described in the Kennedy Catalog. Write for your copy.

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along these lines will prove of great profit to the industry."

Mr. A. P. Greensfelder was next on the program with the report of the Committee on Methods. A lengthy discussion followed, dealing particularly with financial statements which the contractor must present to his banker, and also with the advisability and practicability of conducting quantity survey bureaus for the use of contractors in preparing estimates.

The presentation by Mr. L. C. Wason of the report of the Committee on Labor ended the day's business session.

Despite a rain storm, which began early in the morning and lasted most of the day, most of the delegates made a trip through Hollywood and to the beach cities near Los Angeles, which had been arranged by the Los Angeles Chapter entertainment committee. Dinner was served at the California Yacht Club at Wilmington, and a little after six the long train of automobiles left for Hollywood and the Lasky studio, where a trip through movie land was made.

Officers of the Associated General Contractors were guests of the Southern California Chapter of the American Institute of Architects at the California Club for dinner.

Is It Legal To Be a Contractor?

From the American Contractor

Contractors engaged in labor controversies have no bed of roses on which to lie. Thorns seem to be their share. Attorney-General Daugherty handed down an opinion on January 5th, 1923, to the effect that part of the agreements and contracts entered into by some of the builders of San Francisco in order to maintain an open shop labor policy in that city contravened the conspiracy clauses of the Clayton Act relating to interstate commerce.

This opinion of the Attorney-General was enunciated after a review of the evidence submitted before Judge Daniel S. O'Brien in the police court of the city and county of San Francisco, California. Judge O'Brien, upon consideration of the evidence submitted during a long-drawn-out hearing which lasted from July 6th, 1922, until November 14th, 1922, handed down an opinion of the court on the latter date.

It was his opinion that the acts of the defendant contractors and dealers in refusing to sell plumbing materials constituted a violation of the California "Cartwright Act." The motion to dismiss the case was denied the defendants and they were held for trial before the California Superior Court.

That these opinions are of utmost importance to the construction industry and

Equitable Building, New York
E. R. Graham, Architect

For the Entrance Corridors of Office Buildings Use

Frink Reflectors

The corridors of the more important office buildings can generally be successfully lighted by concealed specially designed cove reflectors. May we emphasize the advisability of getting in touch with our Engineering Department before the details are too far developed?

Some prominent New York installations are:

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Monadnock Bldg.	**609 Seaboard Bldg.**
Boston, Mass.	**Philadelphia, Pa.**
161 Summer St.	**Franklin Trust Bldg.**
Detroit, Mich.	**Cincinnati, Ohio**
325 State St.	**17 Greenwood Bldg.**
Cleveland, Ohio	**Louisville, Ky.**
336 The Arcade	**415 West Main St.**
St. Louis, Mo.	**Birmingham, Ala.**
1415 Pine Street	**426 Jefferson Co. Bank Bldg.**

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TOWN HALL
LITTLETON, COLORADO

J. B. BENEDICT
Architect

Unglazed gray Terra Cotta with subdued polychrome enrichment.

DISTINCTION *and* QUALITY

THESE attributes are as important in the small building reflecting the civic taste of the small town as in the monumental edifice expressing the municipal pride of the great city.

Economy, durability and great flexibility for ornamental expression make Terra Cotta the ideal material for embodying this distinction in the more modest community. With this favorite medium for towering skyscraper construction, the highest architectural standards may also be realized in the smaller building of minor scale.

We can assist you in solving the requirements of your local problem. Send for our literature. Address your request to **National Terra Cotta Society**, 19 West 44th Street, New York City.

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Permanent *Beautiful* *Profitable*

to contractors in particular goes without saying. Such interpretation of the laws places contractors in an unenviable position when dealing with labor disturbances. If they refuse to give in to demands of labor unions they may see all work stop on the jobs of the community, but must do nothing to hinder other contractors, whether fly-by-nights or reputable concerns, from taking on contracts and erecting buildings under the terms that the union demands.

On the other hand, according to recent cantonment indictments, if the contractor fails to prevent a raise in wages and a drop in the efficiency of the men on the job, he is likely to be hailed into court to answer to charges of negligence and graft.

We did not hear a certain famous oration entitled "You're damned if you do and you're damned if you don't, and I'm damned if you are," but the speaker must have had prophetic vision. He probably intended, by analogy, to point out the future situation of contractors.

New Building Material Exhibit

A building material exhibit intended primarily for contractors wishing to obtain a line on the most up-to-date building equipment, has been established in the Sharon Building, San Francisco. The entire main floor, formerly occupied by the General Contractors' Association and comprising some 16,000 feet of floor space, has been taken over with the idea of offering to the architectural and engineering professions, as well as the construction industry, an up-to-the-minute display of building materials and contractor's equipment. In addition, it will be the purpose of the management to supply valuable information on future buildings, award of contracts, etc., to salesmen, demonstrators, and others. There will be stenographers on duty and telephones have been provided for the convenience of callers. Automobiles will be chartered to assist out-of-town contractors or buyers in reaching the supply houses and sub-contractors.

The project is under the management and control of Mr. Frank G. O'Kane, for a number of years with the Santa Cruz Portland Cement Company and for some time secretary of the Street Contractors Association. Mr. O'Kane is well known as an athlete and as a member of the Olympic Club he used his influence and energies toward making possible the beautiful stadium in Golden Gate Park. Mr. O'Kane personally collected the funds for its completion. San Francisco has long been in need of some such exhibit as Mr. O'Kane promises to give, and its success seems assured.

Hardwood Interiors
Give Individuality
— their cost reasonable

The small amount of lumber required brings the cost of genuine hardwood trim very little over pine or redwood, whereas the results, as you know, are not to be compared.

Hardwood finish gives distinction—it imparts a charm that nothing of equal cost can approach, whether in the panelled walls and elaborate wood carvings of a mansion or simply in doors and casings, picture moulding and baseboards of a modest bungalow.

The possibilities of hardwood finish

in the way of artistic and distinctive interiors are unlimited. Besides the usual trim, a beautiful oak staircase, genuine mahogany French doors, or a built-in buffet of walnut, for instance, will make the keynote for a fine interior.

The additional cost of $50 to $200 per room over Pine is very small in comparison with the added value and manifestly higher class in which a house is placed through having the touch of hardwood finish.

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5th and Brannan Sts San Francisco

A·F·B·A
USE FACE BRICK
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Wing of Public Library, Waltham, Mass., Loring & Leland, Architects

There is distinctive character in this design, as there is in the durable brick and the English Bond in which it is carried out. A century from now this building will have the added mellowness of tradition and age, with its usefulness unimpaired.

This advertisement, which appeared in the November issues of the Architectural Journals, is repeated to correct an error in naming the architects of the building.

Advance in Artistic Brickwork

A COMPARISON of present-day brickwork with that of a generation ago shows a remarkable advance in the handling of this plastic material. The greater skill on the part of designers in the use of bonds, pattern work, mortar colors and the color ranges in the material itself is, in all parts of the country, producing beautiful structures.

Many architects have learned that artistic effects in brickwork are not dependent on special sizes or molded forms, but that they can be economically obtained by the use of standard size Face Brick.

More than a hundred examples of the artistic possibilities of standard size Face Brick are shown in The Portfolio of Architectural Details in Brickwork. The de luxe half-tone plates comprising the series are assembled in three series, each in an enclosed folder, with printed tab, ready for filing. A set of these folders will be sent to any architect requesting them on his office stationery.

AMERICAN FACE BRICK ASSOCIATION

1759 PEOPLES LIFE BUILDING • CHICAGO, ILLINOIS

Santa Barbara Issues Call for Contractors

Under date of January 17th, newspaper dispatches from Santa Barbara furnish information which might prove of interest to Central California contractors. Here is the information as received from the Southern city:

"Building in Santa Barbara has advanced so rapidly that the city is hampered in its expansion by the lack of bids on contracts offered. Today the City Manager sent out the police force to round up the Council for a special meeting to consider the problem of having a dozen advertised contracts ready for letting tomorrow and no bids in. The councilmen, after the meeting, started out as committees of one to see contractors personally and urge them to bid on city work in order that contemplated improvements might not be delayed."

Marshall & Stearns Warehouse

A one-story reinforced concrete warehouse, 100 x 200 feet, is to be erected at 17th and Arkansas streets, San Francisco, for the Marshall & Stearns Wall Bed Company. The owners of the property are the Real Estate Development Company and the construction work will be in the hands of Mr. George Wagner. The building is estimated to cost $60,000, a feature of which will be a series of electric ovens for baking enamel which is used in the construction of Marshall & Stearns wall beds.

Building for D. Zelinsky & Sons

Plans have been prepared by Architect S. Heiman, 57 Post street, San Francisco, for a one-story brick paint shop and office building for D. Zelinsky & Sons, whose present quarters at 522 Turk street have been outgrown. The new building will occupy ground area 40 x 120 feet and will have an attractive street facade. This company has recently moved into larger quarters in Los Angeles, where its business has more than trebled the last two years.

Leather Mat Manufacturing Co., Inc.
Manufacturers of
"BEATSALL"
California Product
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Holtzer-Cabot

Fire Alarm and Signal Systems

The importance of adequate fire alarm and signaling systems in hospitals, schools, factories and public buildings cannot be overestimated.

The premier protection against loss of life and loss of property due to unforeseen fires is a reliable and efficient alarm system. The Holtzer-Cabot Electric Co. have been making fire alarm and signal systems for more than forty years. Each aspect and condition pertaining to warnings has been thoroughly investigated.

Holtzer-Cabot fire alarm systems warn without alarming. They guard against panic. Delays in transmitting the alarm to all parts of the building have been minimized and all dangers have been greatly reduced.

The Holtzer-Cabot Electric Co. will be pleased to supply architects and engineers with catalogues and booklets detailing the various kinds of fire alarm and signal systems which they make and give details of the numerous hospitals, schools, factories, and other public institutions where Holtzer-Cabot Electric Co. systems have been installed.

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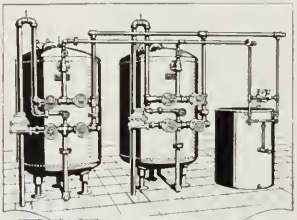

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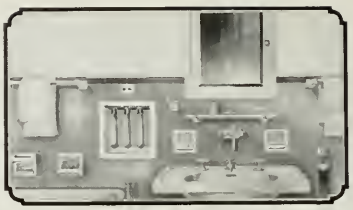

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This shows the seasonal nature of demand for cement. Most people still believe that the "building season" means six or seven months of the year instead of twelve. Last year more than 14,000,000 barrels of cement were shipped during August and less than 3,000,000 barrels in January.

Cement being a basic building material is a prime mover—in other words, the demand for cement immediately creates a demand for all other building materials. And this comes at a time when crop and fuel movements are already overtaxing the railroads.

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A National Organization to Improve and Extend the Uses of Concrete

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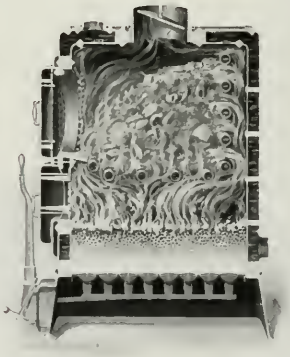

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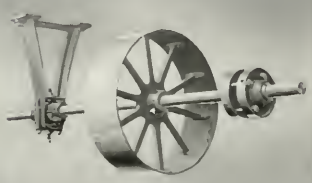

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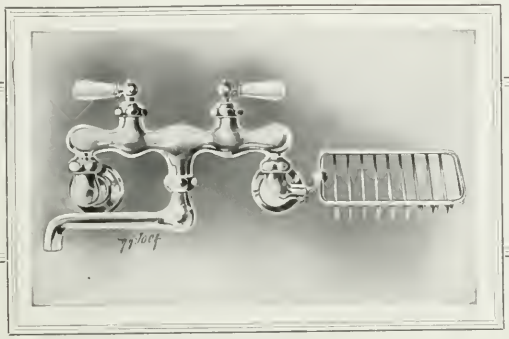

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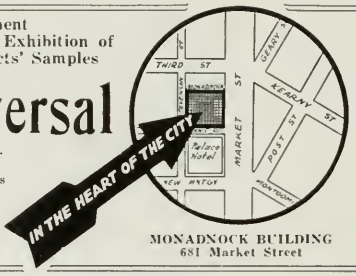

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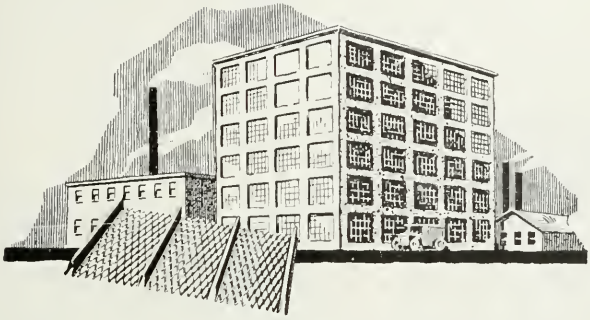

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A. R. SMITH, Construction Engineering Dept., GENERAL ELECTRIC CO. of New York, on page 724 in the company's official
"GENERAL ELECTRIC REVIEW,"
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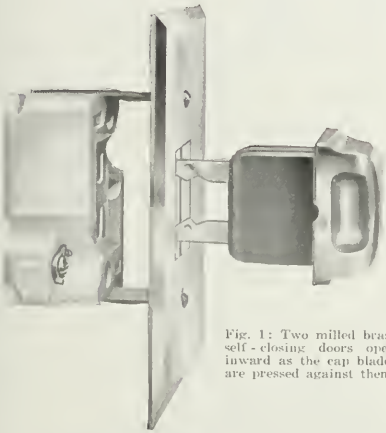

Fig. 1: Two milled brass self-closing doors open inward as the cap blades are pressed against them.

Two-thirds actual size
Duplex FLUSH DOOR Receptacle No. 6755, with plate No. 6756—assembled

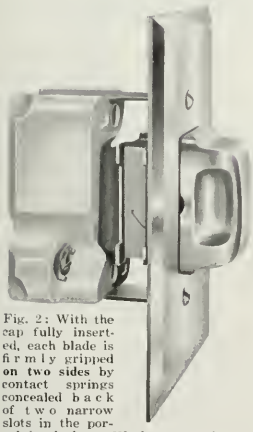

Fig. 2: With the cap fully inserted, each blade is firmly gripped **on two sides** by contact springs concealed back of two narrow slots in the porcelain body. Weak connections are impossible.
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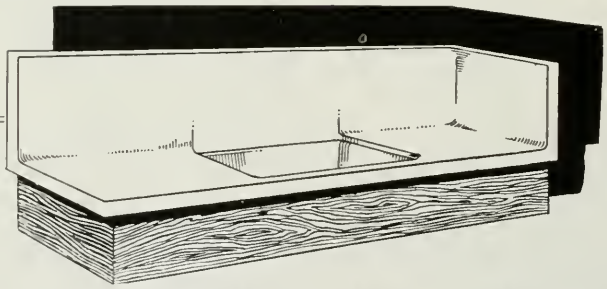

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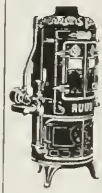

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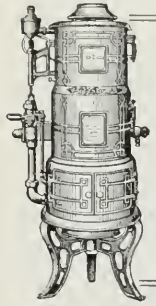

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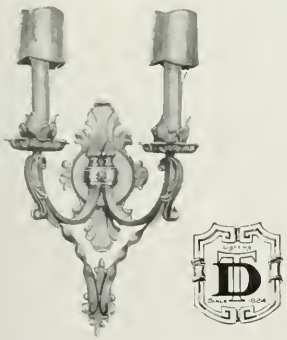

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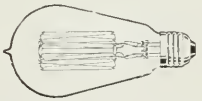

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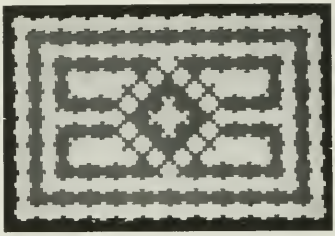

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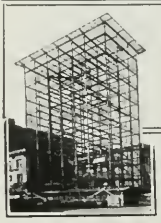

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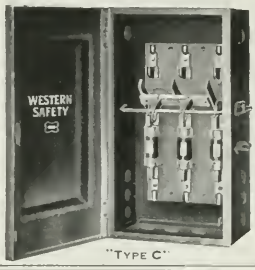

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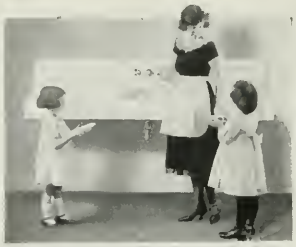

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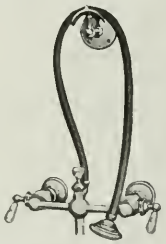

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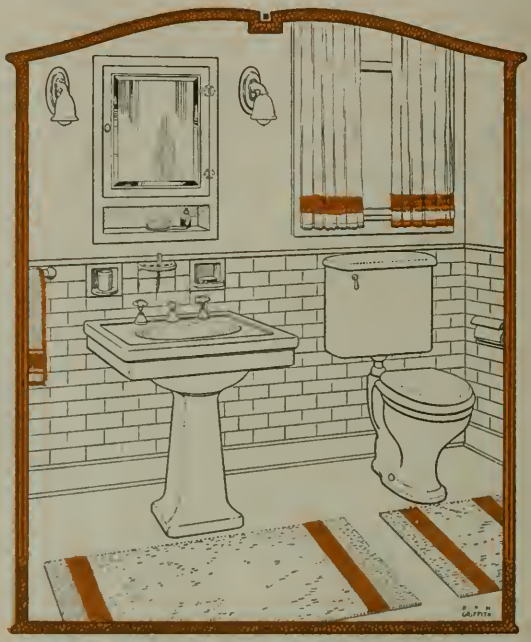

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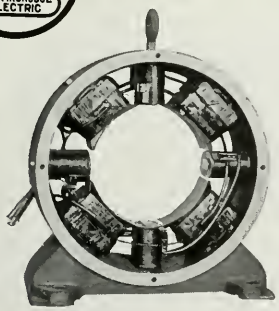

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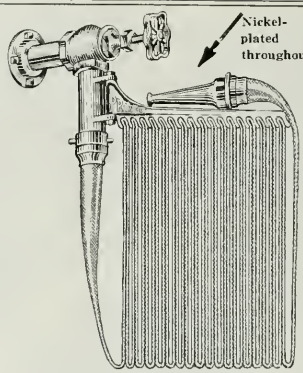

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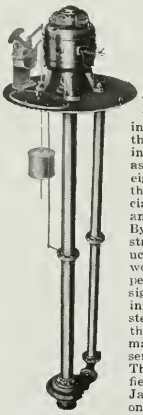

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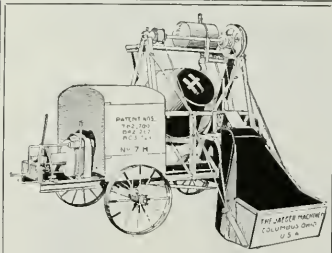

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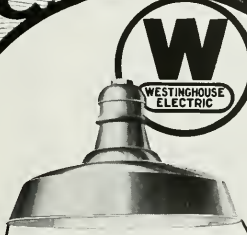

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Zelinsky, D & Co.	149

NASON'S OPAQUE FLAT FINISH A VALUABLE OIL PAINT FOR WALLS, CEILINGS, ETC.
Made in California to stand Pacific Coast climatic conditions
R. N. Nason & Co., Paint Makers
PORTLAND 151 Potrero Ave.—SAN FRANCISCO—436 Market St. SEATTLE

ARCHITECTS' SPECIFICATION INDEX—Continued

Palace Hardware Company, Agents Corbin goods, 581 Market St., San Francisco.
Richards-Wilcox Mfg. Co., Aurora; Ewing-Lewis Co., 626 Underwood Bldg., San Francisco.

BUILDING MATERIALS, SUPPLIES, ETC.
Pacific Materials Co., Underwood Bldg., San Francisco.
Waterhouse-Wilcox Co., 523 Market St., San Francisco.
C. H. Jensen Co., Call Building, San Francisco.
John R. Steffens-Lomax Co., Monadnock Bldg., San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco

BUILDING PAPER
The Paraffine Companies, Inc., San Franciaco, Los Angelea, Portland and Seattle.

BUILDING TILE (Burned Clay)
California Brick Co., 604 Mission St., San Francisco.

CABINET MAKERS
Home Manufacturing Company, 543 Brannan St., San Francisco.
Mullen Manufacturing Company, 64 Rausch St., San Francisco.
Lannom Bros. Mfg. Co., 5th and Magnolia Sts., Oakland.
Pacific Mfg. Co., San Francisco, Los Angeles and Oakland.

CASEMENT WINDOW HARDWARE
Richards-Wilcox Mfg. Co., Aurora, Ill., and Underwood Bldg., San Francisco.

CEMENT
Atlas Portland Cement Co., agencies in all principal Coast cities.
Best Bros. Keene's Cement Co., John R. Steffens-Lomax Co., Agents, Monadnock Bldg., San Francisco.
Old Mission Portland Cement Co., Mills Bldg., San Francisco.
Medusa Stainless White Cement, plain and waterproofed, carried in stock and sold by leading building supply dealers in California, Oregon and Washington.
The Paraffine Companies, San Francisco, and principal Coast Cities.

CEMENT EXTERIOR WATERPROOF PAINT
Armorite, sold by W. P. Fuller & Co., all principal Coast cities.
Minwax Co., Inc., 22 Batery St., San Francisco and 653 S. Clarence St., Los Angeles.
The General Fireproofing Company, 20 Beale Street, San Francisco

CEMENT STUCCO
"California" sold by Atlas Mortar Company, Holbrook building, San Francisco.

CEMENT TESTS—CHEMICAL ENGINEERS
Robert W. Hunt & Co., 251 Kearny St., San Francisco.

CLAY PRODUCTS
California Brick Co. and Livermore Fire Brick Works, 604 Mission St., San Francisco.
Cannon & Co., Sacramento, Cal.
Gladding, McBean & Co., Crocker Bldg., San Francisco.
Los Angeles Pressed Brick Co., Frost Bldg., Los Angeles.
Tropico Potteries, Inc., Glendale, Cal.
United Materials Co., Sharon Bldg., San Francisco.

CLOCKS—ELECTRIC TIME
Pacific Electric Clock Co., 714 Wells-Fargo Bldg. San Francisco.
Standard Electric Time Co., 461 Market St., San Francisco.

COLD STORAGE PLANTS
Cyclops Iron Works, 837 Folsom St., San Francisco.

COMPOSITION FLOORS
"Linotol" plastic flooring, Hill, Hubbell & Co., 115 Davis St., San Francisco; 410 San Fernando Bldg., Los Angeles.
Western Asbestos Magnesia Company, 25 South Park, San Francisco.
Hoff Magnesite Co., San Francisco. Miller & Alf, 337 Monadnock Bldg., San Francisco, general agents.

CONCRETE BUILDING ACCESSORIES
John R. Steffens-Lomax Co., 951 Monadnock Bldg., San Francisco.

CONCRETE CONSTRUCTION
Thermo-Wall System, R. O. McCline, 1315 Fruitvale Ave., Oakland.

CONCRETE OR CEMENT HARDENER
Gunn, Carle & Co., Inc., 444 Market St., San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco

CONCRETE MIXERS
Foote and Jaeger mixers sold by Edward R. Baron Co., 51 Minna St., San Francisco, also Los Angeles.

CONCRETE REINFORCEMENT
Edw. L. Soule Co., Rialto Bldg., San Francisco.
Gunn, Carle & Co., Inc., 444 Market St., San Francisco.
Clinton Welded Wire Fabric, Wickwire Spencer Steel Corporation, 111 Townsend St., San Francisco.
Judson Mfg. Co., 817-821 Folsom St., San Francisco.
Pacific Coast Steel Company, Rialto Bldg., San Francisco.
Triangle Mesh Fabric. Sales agents, Pacific Materials Co., 525 Market St., San Francisco.
Truscon Steel Co., 709 Mission St., San Francisco.
Badt-Falk Co., Call-Post Bldg., San Francisco.

CONDUITS
"Shrerarduct," Garnett Young & Company, 612 Howard St., San Francisco.

CONTRACTORS, GENERAL
Barrett & Hilp, 918 Harrison St., San Francisco.
Herbert Beckwith, Everson Bldg., Oakland.
Larsen-Siegrist Co., Inc., 807 Claus Sprerkels Bldg., San Francisco.
R. W. Littlefield, 357-12th St., Oakland.

SATINETTE WHITE ENAMEL
FLATTINE CABINET FINISH
ELASTICA INTERIOR AND ELASTICA EXTERIOR
Standard Varnish Works
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CORROSIRON
the acid proof drain pipe

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IN HIGH SCHOOLS, COLLEGES, HOSPITALS,
ENGRAVING PLANTS

Write for Our Bulletin
PACIFIC FOUNDRY COMPANY
HARRISON and EIGHTEENTH STREETS SAN FRANCISCO

ARCHITECTS' SPECIFICATION INDEX—Continued

K. E. Parker Co., Inc., Clunie Bldg., San Francisco.
Dinwiddie Construction Co., Crocker Bldg., San Francisco.
John M. Bartlett, 357 Twelfth St., Oakland.
Chas. Stockholm & Son, Monadnock Bldg., San Francisco.
Clinton Construction Company, 923 Folsom St., San Francisco.
Monson Bros., 251 Kearny St., San Francisco.
Geo. Wagner, 251 Kearny St., San Francisco.
T. B. Goodwin, 180 Jessie St., San Francisco..
McLeran & Co., R., Hearst Bldg., San Francisco.
Robert Trost, 26th and Howard Sts., San Francisco.
I. M. Sommer, 401 Balboa Bldg., San Francisco.
Jas. L. McLaughlin, 251 Kearny St., San Francisco.
Alfred H. Vogt, 185 Stevenson St., San Francisco.
Lange and Bergstrom, Sharon Bldg., San Francisco and Washington Bldg., Los Angeles.
David Nordstrom, 4146 Emerald Street, Oakland.
The Holton Company, 806 Syndicate Building, Oakland.

CONTRACTORS' EQUIPMENT
Edward R. Bacon Co., 51 Minna St., San Francisco, and Los Angeles.

CONVEYING MACHINERY
Messe & Gottfried, San Francisco, Los Angeles, Portland and Seattle.

CONVENIENCE OUTLETS
Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St.

CORK TILE
Van Fleet-Freear Co., Sharon Bldg., San Francisco.

CRUSHED ROCK
Coast Rock & Gravel Co., Call-Post Bldg., San Francisco.

CURTAINS—STEEL, ROLLING, FIREPROOF
J. G. Wilson Corp., 621 N. Broadway, Los Angeles.

DAMP-PROOFING AND WATERPROOFING
Armorite Damp Resisting Paint, made by W. P. Fuller & Co., San Francisco.
"Imperial," manufactured by Brooks & Doerr, Merchants National Bank Building, San Francisco.
Samuel Cabot Co., Boston; represented in San Francisco by Pacific Materials Co., Underwood Bldg., San Francisco.
"Pabco" Damp-Proofing Compound, sold by the Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.
Western Asbestos Magnesia Company, 25 South Park, San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco

DOOR HANGERS
McCabe Door Hanger Company, leading hardware stores.
Pitcher Hanger, sold by National Mill & Lumber Co., 326 Market St., San Francisco.
Stanley Works, New Britain, Conn... Monadnock Bldg., San Francisco.
Richards-Wilcox Mfg. Co., Underwood Bldg., San Francisco.

DOORS—VANISHING
W. L. Evans, 700 Block B., Washington, Ind.

DRAIN PIPE AND FITTINGS
"Corrosiron" Acid Proof, manufactured by Pacific Foundry Co., Harrison and 18th Sts., San Francisco.

DRINKING FOUNTAINS
Haws Sanitary Drinking Faucet Co., 1808 Harmon St., Berkeley, and C. F. Weber & Co., San Francisco and Los Angeles.
Crane Company, San Francisco, Oakland, and Los Angeles.
Pacific Porcelain Ware Co., 67 New Montgomery St., San Francisco.
Haines, Jones & Cadbury Co., 857 Folsom St., San Francisco.

DUMB WAITERS
Spencer Elevator Company, 166-7th St., San Francisco.
San Francisco Elevator Company, Inc., 860 Folsom St., San Francisco.

ELECTRICAL APPLIANCE SUPPLIES
Electric Appliance Company, 809 Mission St., San Francisco.

ELECTRICAL CONTRACTORS
Butte Electrical Equipment Company, 530 Folsom St., San Francisco.
Butte Electric & Manufacturing Co., 534 Folsom St., San Francisco.
Central Electric Company, 185 Stevenson St., San Francisco.
NePage, McKenny Co., 589 Howard St., San Francisco.
Newbery Electrical Co., 359 Sutter St., San Francisco.
Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.
Globe Electric Works, 1959 Mission St., San Francisco.
M. E. Ryan, Redwood City, and 520 Clunie Bldg., San Francisco.
H. S. Tittle, 766 Folsom St., San Francisco.
Brown-Langlais Electrical Construction Co., 313 Fifth Street, San Francisco.
A. F. Wells Company, 155 Second St., San Francisco.

ELEVATOR MOTORS AND CONTROL
Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., and First National Bank Bldg., San Francisco, Calif.

ELECTRIC PLATE WARMER
The Prometheus Electric Plate Warmer for residences, clubs, hotels, etc. Sold by M. E. Hammond, Pacific Bldg., San Francisco.

ELECTRICAL SUPPLIES AND EQUIPMENT
"H. & H. Switches," Garnett Young & Co., 612 Howard St., San Francisco.

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12 OUNCES TO 20 TONS
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ARCHITECTS' SPECIFICATION INDEX—Continued

Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Franrisco by Garnett Young & Co., 612 Howard St.
Drendell Electrical & Mfg. Co., 1345 Howard St., San Francisco.
Western Electric Safety Mfg. Co., Inc., 247 Minna St., San Francisco.

ELECTRIC TOWEL
The AIRDRY Electric Towel for clubs, office buildings, hotels, schools, etc., represented on Pacific Coast by Airdry Co., of California, 165 Montgomery St., San Francisco.

ELEVATORS—PASSENGER and FREIGHT
Pacific Elevator & Equipment Co., 1129 Howard Street, San Francisco.
Otis Elevetor Company, Stockton and North Point, San Francisco.
Spencer Elevator Company, 166-7th St., San Francisco.
San Francisco Elevator Co., 860 Folsom St., San Francisco.

ELEVATOR DOOR HARDWARE
Richards-Wilcox Mfg. Co., Underwood Bldg., San Francisco.

ENGINEERS—CONSULTING, ELECTRICAL, MECHANICAL
Chas. T. Phillips, 550 Montgomery St., San Francisco.
Hunter & Hudson, Rialto Bldg., San Francisco.
Ralph E. Dodge, 251 Kearny St., San Francisco.
Meese & Gottfried, San Francisco, Seattle, Portland, Los Angeles.

FANS AND BLOWERS
Tiltz Engineering and Equipment Co., 479 Monadnock Building, San Francisco.

FAIENCE TILE
Tropico Potteries, Inc., Glendale, Cal.

FELTS
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

FENCES—WIRE AND IRON
Standard Fence Company, 432 Bryant, San Francisco and 60th and Lowell Sts., Oakland.

FIRE BRICK, TILE & CLAY
Livermore Fire Brick Works, 604 Mission St., San Francisco.

FIRE EXIT LATCHES
Vonnegut Hardware Co., Indianapolis, Ind., represented in San Francisco by Abeel Jensen Co., Call Building.

FIRE ESCAPES
Michel & Pfeffer Iron Works, 1415 Harrison St., San Francisco.
Palm Iron & Bridge Works, Sacramento.
Western Iron Works, 141 Beale St., San Francisco.

FIRE HOSE RACKS
Plant Rubber & Asbestos Works, 537-539 Brannan Street, San Francisco.

FIRE-PROOF DOORS
Forderer Cornice Works, 269 Potrero Ave., San Francisco.
U. S. Metal Products Co., 330-10th St., San Francisco.
Kinnear Mfg. Co., represented in San Francisco by Pacific Materials Co., Underwood Bldg.
The J. G. Wilson Corporation, 621 North Broadway, Los Angeles.

FIRE SPRINKLERS—AUTOMATIC
Fire Protection Engineering Co., 67 Main St., San Francisco.
Grinnell Company of the Pacific, 453 Mission St., San Francisco.
Independent Automatic Sprinkler Co., 72 Natoma St., San Francisco.
Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.

FIRE RETARDING PAINT
The Paraffine Companies, Inc., 34 First St., San Francisco.
Fire Retardent Products Co., 2838 Hannah St., Oakland, Cal.

FIXTURES—BANK, OFFICE, STORE, ETC.
Home Manufacturing Company, 543 Brannan St., San Francisco.
Mullen Manufacturing Co., 64 Rausch St., San Francisco.
C. F. Weber & Co., 985 Market St., San Francisco, and 210 N. Main St., Los Angeles, Cal.

FLOOR CLIPS
Bull Dog Floor Clip Sales Co., 77 O'Farrell St., San Francisco, and 600 Metropolitan Bldg., Los Angeles.

FLOORS—TILE, CORK, ETC.
Mangrum & Otter, 827 Mission St., San Francisco.
Van Fleet-Freear Co., 61 New Montgomery St., San Francisco, and 420 S. Spring St., Los Angeles.

FLOOR VARNISH
Bass-Hueter and San Francisco Pioneer Varnish Works, 816 Mission St., San Francisco.
Fifteen for Floors, made by W. P. Fuller & Co., San Francisco.
Standard Varnish Works, Chicago, New York and San Francisco.
R. N. Nason & Co., San Francisco and Los Angeles.
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.
Murphy's Transparent Floor, Uhl Bros., San Francisco, Seattle, Portland, Oakland, Los Angeles.

FLOORS—HARDWOOD
Oak Flooring Manufacturers' Association of the United States, Ashland Block, Chicago, Ill.
Cadwallader, Gibson Co., 5th & Brannan St., San Francisco.
Parrott & Co., 320 California St., San Francisco.
Strable Hardwood Company, 511 First St., Oakland.
E. L. Bruce Co., Manufacturers, Memphis, Tenn.
White Bros., 5th and Brannan Sts., San Francisco.

FLOOR TREATMENT—HARDWOOD, COMPOSITION AND CONCRETE
Minwax Co., Inc., 22 Battery St., San Francisco and 653 S. Clarence St., Los Angeles.

THE PELTON WATER WHEEL CO.
Hydraulic Engineers
Light-Duty High-Head Pumps for Tank and Other Building Service
Heavy-Duty Pumps for Municipal and General Water Supply
2022 Harrison Street San Francisco

EMERSON KNIGHT

Landscape Architect and Engineer

704 Market Street, Room 1012, San Francisco—Telephone Sutter 751

ARCHITECTS' SPECIFICATION INDEX—Continued

FLOORS—MASTIC—FLOOR COVERING
- Hill, Hubbell & Company, 115 Davis St., San Francisco.
- The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

FLUE LINING
- California Brick Company, 604 Mission St., San Francisco.

FUEL OIL SYSTEMS
- S. T. Johnson Co., 1337 Mission St., San Francisco.
- S. F. Bowser & Co. Inc., 612 Howard St., San Francisco.
- Wayne Tank and Oil Co., 631 Howard St., San Francisco.

FURNACES—WARM AIR
- Mangrum & Otter, 827 Mission St., San Francisco.
- Montague Range and Furnace Co., 826 Mission St., San Francisco.

FURNITURE—OFFICE, SCHOOL, CHURCH, ETC.
- Home Manufacturing Company, 543 Brannan St., San Francisco.
- C. F. Weber & Co., 985 Market St., San Francisco.
- F. W. Wentworth & Co., 539 Market St., San Francisco.
- W. & J. Sloane, 216 Sutter St., San Francisco.
- Western States Seating Co., 133 Kearny St., San Francisco.

FURRING TILE (Burned Clay)
- California Brick Company, 604 Mission St., San Francisco.

GARAGE HARDWARE
- The Stanley Works, New Britain, Conn., Coast sale offices, San Francisco, Los Angeles and Seattle, Wash.
- Richards-Wilcox Mfg. Co., Aurora, Ill., and Underwood Bldg., San Francisco.

GLASS
- American Window Glass Co., represented by L. H. Butcher Co., 862 Mission St., San Francisco.
- Cobbledick-Kibbe Glass Co., 666 Howard St., San Francisco.
- Fuller & Goepp, 32 Page St., San Francisco, and Jackson, at Eleventh St., Oakland.
- W. P. Fuller & Company, all principal Coast cities.

GRADING, WRECKING, ETC.
- Dolan Wrecking & Construction Co., 1607 Market St., San Francisco.

GRANITE
- Raymond Granite Co., Potrero Ave., and Division St., San Francisco.

GRAVEL AND SAND
- Coast Rock & Gravel Co., Call-Post Bldg., San Francisco.
- Del Monte White Sand, sold by Del Monte Properties Co., Crocker Bldg., San Francisco.

GYMNASIUM EQUIPMENT—LOCKERS, ETC.
- Ellery Arms Co., 583 Market St., San Francisco.
- George Trask, Durand Steel Locker Co., 76 Sacramento St., San Francisco.

HARDWARE
- Joost Bros., agents for Russell & Erwin Hardware, 1053 Market St., San Francisco.
- The Stanley Works, New Britain, Conn.; Coast sales offices, San Francisco, Los Angeles, and Seattle, Wash.
- Corbin hardware, sold by Palace Hardware Co., 581 Market St., San Francisco.
- Richards-Wilcox Mfg. Co., Aurora, Ill., Ewing-Lewis Co., 626 Underwood Bldg., San Francisco.
- Vonnegut hardware, sold by Abeel-Jensen Co. Call Bldg., San Francisco.

HARDWOODS
- White Brothers, 5th and Brannan Streets, San Francisco.

HEATING AND VENTILATING CONTRACTORS
- Atlas Heating and Ventilating Company, Inc., Fourth and Freelon Sts., San Francisco.
- Alex Coleman, 706 Ellis St., San Francisco.
- Gilley-Schmid Company, 198 Otis St., San Francisco.
- Hateley & Hateley, Mitau Bldg., Sacramento.
- Mangrum & Otter, 827-831 Mission St., San Francisco.
- Lawson & Drucker, 450 Hayes St., San Francisco.
- Carl T. Doell, 467 21st St., Oakland.
- Luppen, Hawley & Thing, 906 7th St., Sacramento.
- William F. Wilson Co., 328 Mason St., San Francisco.
- W. H. Picard, 5656 College Ave., Oakland.
- Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.
- Scott Company, 243 Minna St., San Francisco.

HEATING & VENTILATING EQUIPMENT
- W. S. Haines & Co.'s steam specialties. O. M. Simmons Company, 115 Mission St., San Francisco.
- Hulting, Hurst & Hulting, representing Jas. P. Marsh Co., Monadnock Bldg., San Francisco.
- Illinois Engineering Co., Pacific Bldg., San Francisco.
- Tiltz Engineering & Equipment Co., 470 Monadnock Bldg., San Francisco.
- Williams Radiator Company, 5 Monadnock Bldg., Arcade, San Francisco.

HEATERS, WATER-GAS, ELECTRIC, ETC.
- Pittsburg Water Heater Company, 478 Sutter St., San Francisco.
- Rudd Automatic Water Heater, sold by Rudd Heater Company, 431 Sutter St., San Francisco.

HEATERS, GAS GRATES, RADIATORS, ETC.
- General Gas Light Company, 768 Mission St., San Francisco.
- Ra-Do Fumeless Gas Radiators, Potter Radiator Corporation, 478 Sutter St., San Francisco
- Humphrey Radiantfire, sold by Rudd Heater Company, 431 Sutter St., San Francisco.

W. S. Haines & Co., Steam Specialties, Vacuum and Vapor Systems of Heating

"Twenty-four years of satisfactory service."

(See Page 1503 of Sweet's Catalogue)

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JOSEPH MUSTO SONS--KEENAN CO.

Phone Franklin —6365— MARBLE Office and Mills: 535-565 North Point St., SAN FRANCISCO, CAL.

ARCHITECTS' SPECIFICATION INDEX—Continued

Williams Radiator Company, "Gas Steam Radiators," 5 Monadnock Building, Arcade, San Francisco.

HOLLOW BUILDING TILE (Burned Clay)
California Brick Company, 604 Mission St., San Francisco.

HOLLOW TILE BLOCKS
Cannon & Co., plant at Sacramento; 77 O'Farrell St., San Francisco.
California Brick Company, 604 Mission St., San Francisco.
Gladding, McBean & Co., San Francisco, Los Angeles, Oakland and Sacramento.
Los Angeles Pressed Brick Co., Frost Bldg., Los Angeles.

HOSE—UNDERWRITERS UNLINED LINEN—RUBBER
Plant Rubber & Asbestos Works, 537-539 Brannan Street, San Francisco.

HOSPITAL FIXTURES
Mott Company of California, 553 Mission St., San Francisco.

HOSPITAL SIGNAL SYSTEMS
Chicago Signal Co., represented by Garnett Young & Co., 612 Howard St., San Francisco.
Holtzer-Cabot Electric Company, San Francisco Branch, 408 Claus Spreckles Building.

ICE MAKING MACHINERY
Cyclopa Iron Works, 837 Folsom St., San Francisco.

INDUSTRIAL LIGHTING EQUIPMENT
Westinghouse Electric and Mfg. Co., East Pittsburgh, Pa., and First National Bank Building, San Francisco.

INGOT IRON
"Armco" brand, manufactured by American Rolling Mill Company, Middletown, Ohio, and 10th and Bryant Sts., San Francisco.

INSPECTIONS AND TESTS
Robert W. Hunt & Co., 251 Kearny St., San Francisco.

INSULATION—CORK
Van Fleet-Freear Co., Sharon Bldg., San Francisco.

INSURANCE BROKERS
William Healey & Son, Cracker Bldg., San Francisco.

JAIL EQUIPMENT
Ralston Iron Works, 20th and Indiana Sts., San Francisco.

LAMP POSTS, ELECTROLIERS, ETC.
J. L. Mott Iron Works, 553 Mission St., San Francisco.

LANDSCAPE ARCHITECT
Emerson Knight, 704 Market St., San Francisco.

LANDSCAPE GARDENERS
MacRorie-McLaren Co., 514-516 Phelan Bldg., San Francisco.

LATHING AND PLASTERING
MacGruer & Simpson, 226 Tehama St., San Francisco.
A. Knowles, Call-Post Bldg., San Francisco.

LATHING MATERIAL—WIRE, ETC.
Buttonlath Manufacturing Co., Los Angeles and 207 Balboa Bldg., San Francisco.
Pacific Materials Co., 525 Market St., San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco
Truscon Steel Co., 709 Mission Street, San Francisco.
Wickwire Spencer Steel Corporation, 111 Townsend St., San Francisco.

LEATHER MATS
Leather Mat Mfg. Co., 340 Sansome St., San Francisco.

LIGHT, HEAT AND POWER
Great Western Power Company, Stockton St., near Sutter, San Francisco.
Pacific Gas & Electric Co., Sutter St., San Francisco.

LIGHTING FIXTURES
Benjamin Electric Mfg. Co., New York, Chicago and San Francisco.
D. Dierssen Co., 30 Davis Street, San Francisco. Distributors Solar-Lite fixtures.
Thomas Day Company, Mission, near Third St., San Francisco, and Oakland.
Electric Appliance Company, 809 Mission St., San Francisco.
Roberts Mfg. Co., 663 Mission St., San Francisco.

LIMESTONE, INDIANA
Indiana Limestone Quarrymen's Association, Box 770, Bedford, Indiana.

LINOLEUM
D. N. & E. Walter & Co., 562 Mission St., San Francisco.
The Paraffine Companies, factory in Oakland; office, 34 First St., near Market, San Francisco.
W. & J. Sloane, 216 Sutter St., San Francisco.

LUMBER
Hart-Wood Lumber Co., Fifth and Berry Sts., San Francisco.
Pacific Manufacturing Company, San Francisco, Oakland, Los Angeles and Santa Clara.
Pope & Talbot, foot of Third St., San Francisco.
Santa Fe Lumber Co., 16 California St., San Francisco.
Sunset Lumber Company, First and Oak Sts., Oakland.
White Bros., 5th and Brannan Sts., San Francisco.

MAIL CHUTES
American Mailing Device Corp., represented on Pacific Coast by Waterhouse-Wilcox Co., 523 Market St., San Francisco.

MANTELS—WOOD, TILE, ETC.
Mangrum & Otter, 827-831 Mission St., San Francisco.

MANUAL TRAINING EQUIPMENT
Richards-Wilcox Mfg. Co., Ewing-Lewis Co., 626 Underwood Bldg., San Francisco.

RAY COOK MARBLE CO.
IMPORTED AND DOMESTIC MARBLES
For Building Construction
Factory and Office, foot of Powell St., Oakland Phone Piedmont 1009

ELECTRIC APPLIANCE COMPANY
ELECTRICAL SUPPLIES
AUTOMOTIVE SUNDRIES RADIO EQUIPMENT
809 MISSION STREET, SAN FRANCISCO
Phone Sutter 4900

ARCHITECTS' SPECIFICATION INDEX—Continued

MARBLE
American Marble and Mosaic Co., 25 Columbus Square, San Francisco.
Ray Cook Marble Company, foot of Powell St., Oakland.
Joseph Musto Sons, Keenan Co., 535 N. Point St., San Francisco.
Vermont Marble Co., Coast branches, San Francisco, Portland and Tacoma.
Tompkins-Kiel Marble Company, 505 Fifth Ave., New York; also Chicago, Philadelphia and San Francisco.
Columbia Marble Co., 413 Rialto Bldg., San Francisco.

MATS, LEATHER
Leather Mat Manufacturing Co., 340 Sansome St., San Francisco.

METAL DOORS AND WINDOWS
Watchouse-Wilcox Co., Inc., 523 Market St., San Francisco.
U. S. Metal Products Co., 330 Tenth St., San Francisco.

METAL FURNITURE
Forderer Cornice Works, 269 Potrero Ave., San Francisco.

METAL TOILET—PARTITIONS
John R. Steffens-Lomax Co., 951 Monadnork Bldg., San Francisco.

MILL WORK
Pacific Manufacturing Company, San Francisro, Los Angeles, Oakland and Santa Clara.
National Mill and Lumber Co., San Francisco and Oakland.
Lannom Bros. Mfg. Co., 5th and Magnolia Sts., Oakland.

NOTARY PUBLIC
William Healey & Son, 208 Crocker Bldg., San Francisco.

OIL BURNERS
Bonting Iron Works, 1215 First Nat. Bank Bldg., San Francisco.
Coen Co., Inc., 112 Market St., San Francisco
Fess System Co., 220 Natoma St., San Francisco.
S. T. Johnson Co., 1337 Mission St., San Francisco.
G. E. Witt Co., 862 Howard St., San Francisco.
W. S. Ray Mfg. Company, 29 Spear St., San Francisco, and 2206 San Pablo Ave., Oakland.
Rotary Oil Burner Company, 159 Twelfth St., Oakland.

OIL STORAGE AND DISTRIBUTING STATIONS
S. F. Bowser & Co., Inc., 612 Howard St., San Francisco.
S. T. Johnson Co., 1337 Mission St., San Francisco.
Wayne Oil Tank & Pump Co., 631 Howard St., San Francisco; 830 S. Los Angeles St., Los Angeles.

ORNAMENTAL IRON AND BRONZE
California Artistic Metal and Wire Co., 349 Seventh St., San Francisco.
Federal Ornamental Iron and Bronze Co., 16th St., and San Bruno Ave., San Francisco.
Michel & Pfeffer Iron Works, 1415 Harrison St., San Francisco.
Palm Iron & Bridge Works, Sacramento.
C. J. Hillard Company, Inc., 19th and Minnesota Sts., San Francisco.
Schrader Iron Works, Inc., 1247 Harrison St., San Francisco.

OVERHEAD CARRYING SYSTEMS
Richards-Wilcox Mfg. Co., Aurora, Ill., and Underwood Bldg., San Francisco.

PANIC DOORS
Vonnegut hardware, sold by Abeel-Jensen Co. Call Bldg., San Francisco.

PAINT FOR STEEL STRUCTURES, BRIDGES, ETC.
The Paraffine Companies, Inc., 34 First St., San Francisco.
Premier Graphite Paint and Pioneer Brand Red Lead, made by W. P. Fuller & Co., San Francisco.
Hill, Hubbell & Company, 115 Davis St., San Franrisco.
Nitrose Paint, Clifford W. L. Day, Pacific Coast representative, 324 Monadnock Bldg., San Francisco.
U. S. Flaterite Products Co. of the Pacific, American National Bank Building, San Francisco.

PAINTING, TINTING, ETC.
I. R. Kissel, 1747 Sacramento St., San Francisco.
D. Zelinsky & Sons, San Francisco and Los Angeles.
The Tormey Co., 681 Geary St., San Francisco.
A. Quandt & Son, 374 Guerrero St., San Francisco.

PAINTS, OILS, ETC.
Magner Bros., 414-424 Ninth St., San Francisco.
Bass-Hueter Paint Co., Mission, near Fourth St., San Francisco and all principal Coast cities.
R. N. Nason & Company, San Francisco, Los Angeles, Portland and Seattle.
W. P. Fuller & Co., all principal Coast cities.
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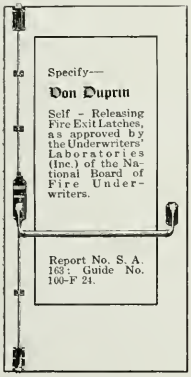
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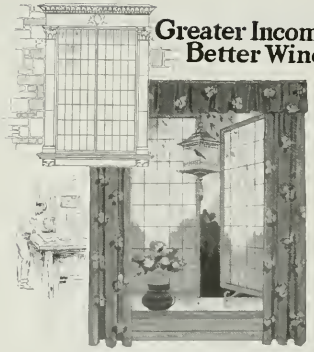

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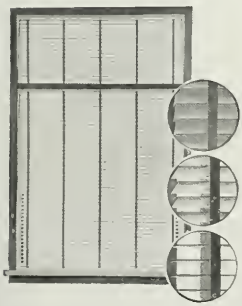

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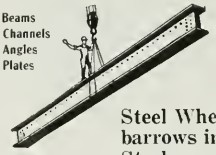

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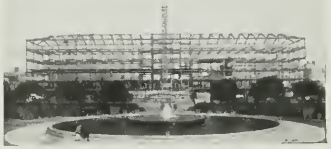

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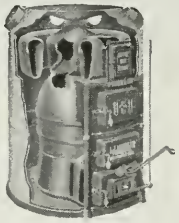

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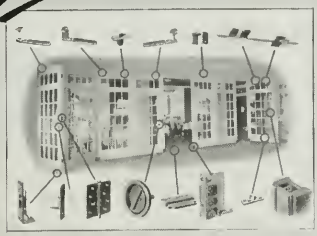

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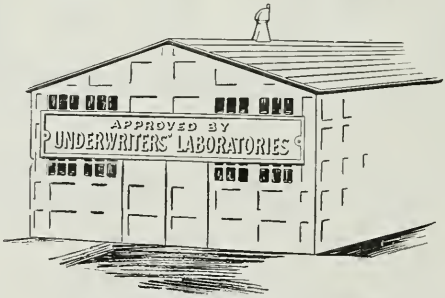

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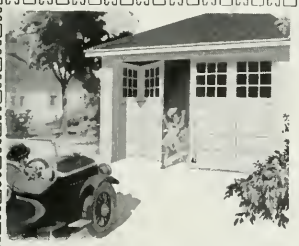

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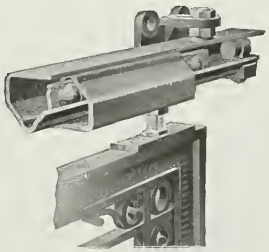

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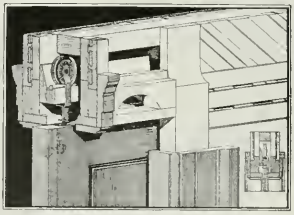

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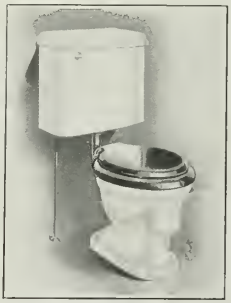

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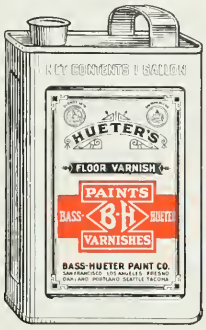

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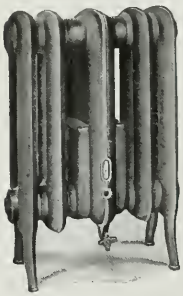

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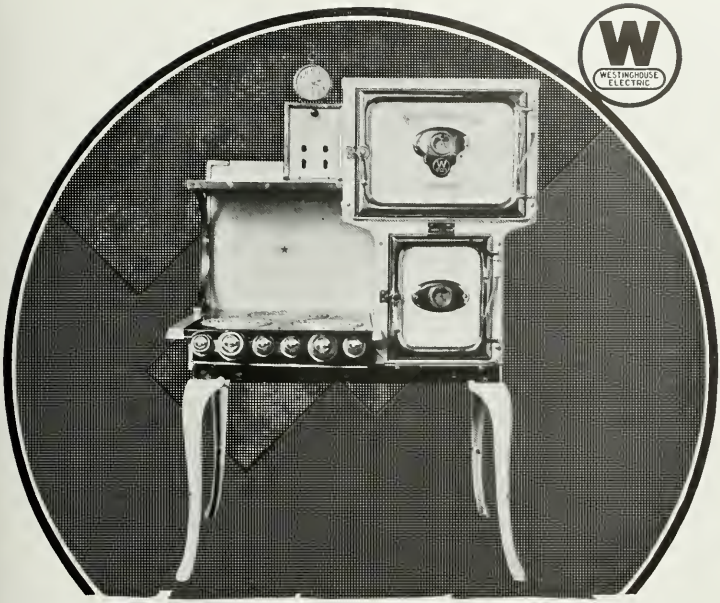

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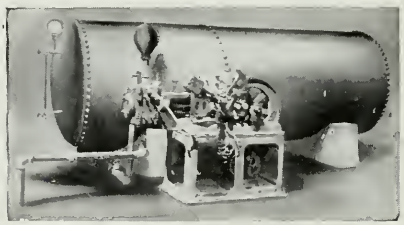

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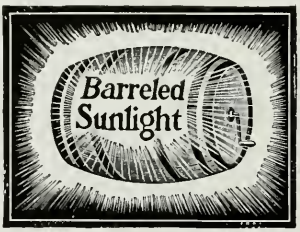

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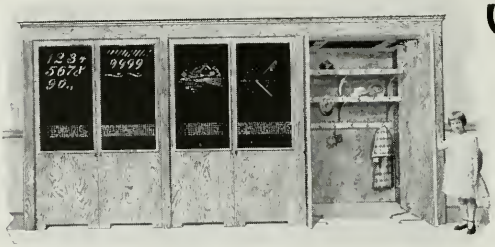

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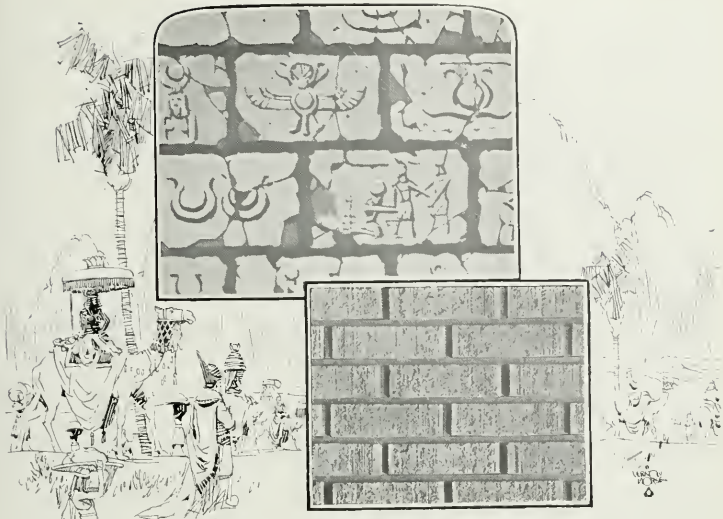

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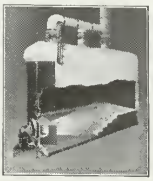
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Published Monthly by
THE ARCHITECT and ENGINEER *Inc.*
626-627 Foxcroft Building San Francisco
W. J. Kierulff, *President* Frederick W. Jones, *Vice-President* I. B. Penhorwood, *Secretary*

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MAUSOLEUM FOR MR. W. A. CLARK, JR., HOLLYWOOD
ROBERT D. FARQUHAR ARCHITECT

THE
ARCHITECT
AND
ENGINEER

MARCH
1923

VOL. LXXII
No. 3

Some Notable Architecture in Southern California*

By FREDK. W. JONES

A JURY of San Francisco architects recently made a number of honor awards to Los Angeles architects for meritorious work in the Southern part of the state. The purpose of the awards was to encourage appreciation of architecture and the fine arts in Southern California by extending recognition of exceptional merit in any executed work in those arts. The conditions governing the awards, together with the report of the jury, are given elsewhere in this article. The illustrations are of some of the buildings that won recognition from the jury, and are published by courtesy of the Southern California Chapter.

As a further means of stimulating good design among not only the architects of Los Angeles, but those throughout California, Oregon and Washington, The Architect and Engineer plans to inaugurate an annual award, open to any architect of good standing on the Pacific Coast, for the best designed hotel, the best designed office building, the best designed apartment house, and the best planned commercial or industrial building in the three states mentioned. Each building must be completed during the current year, the awards to be made by a jury of representative architects in the early part of 1924. The jury will decide from a collection of photographs what it considers architecturally the most meritorious building in each of the four classifications. By courtesy of S. W. Straus & Company, the winners will be awarded a silver cup, bronze tablet, plaque or medal, while the owner of each building will receive a suitably worded diploma. The winning designs, with any others that may have received honor mention by the jury, will be published in a special number of The Architect and Engineer. This should make a valuable volume for every architect's library, as complete working drawings will in each case accompany the photographs.

* Illustrations from 1922 Year Book, Southern California Chapter, A. I. A., and Los Angeles Architectural Club. Honor awards not illustrated have been shown in previous issues of The Architect and Engineer.

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RESIDENCE OF MR. FRED'K. L. BAXTER, MONTECITO
SOULE, MURPHY & HASTINGS ARCHITECTS

RESIDENCE OF
FREDERICK L. BAXTER,
MONTECITO, CALIFORNIA
Soule, Murphy & Hastings,
Architects

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HARWOOD HEWITT ARCHITECT

Architects who have been questioned on the subject are not agreed, however, regarding the conditions of award, and it may be expedient to make some changes before a final program is drawn up. For example, a Los Angeles architect writes that personally he can see trouble ahead in putting conditions that govern the design of these classes of buildings obtaining in Los Angeles against the conditions that would govern their design in San Francisco, Portland, Seattle, and other Northern cities. "Frankly," says this architect, "I think the better way would be to make these awards in each of the cities separately." It is barely possible this will be done.

The conditions governing the recent Los Angeles awards were as follows:

Condition 1.—These awards shall be known as the "Honor Awards of the Southern California Chapter of the American Institute of Architects in Architecture and the Fine Arts."

Condition 2.—The awards shall be of two divisions: CLASSIFIED AWARDS, made under the regular sections fixed in Conditions Four and Five hereof, and SPECIAL AWARDS, made in accordance with Condition Eight hereof.

Condition 3.—Awards of either division shall be made only for work actually executed within the jurisdiction of the Southern California Chapter of the American Institute of Architects subsequent to the time of previous Awards of Honor.

Condition 4.—CLASSIFIED AWARDS, provided for in Condition Two, shall be made for exceptional architectural merit in the sections and classes fixed in this Condition Four, and shall be confined to the work of members of the Southern California Chapter of the American Institute of Architects.

Section I—DWELLINGS, SINGLE:
- Class A—Single detached dwellings, 6 rooms and under.
- Class B—Single detached dwellings, 7 rooms to 12.
- Class C—Single detached dwellings, 13 rooms and over.

Section II—DWELLINGS, MULTIPLE:
- Class A—Multiple dwellings, individual kitchens, 4 apartments and under.
- Class B—Multiple dwellings, individual kitchens, 5 apartments and over.
- Class C—Multiple dwellings, hotel type, city.
- Class D—Mutiple dwellings, hotel type, country.
- Class E—Multiple dwellings, club type, city.
- Class F—Multiple dwellings, club type, country.
- Class G—Multiple dwellings, not included in Classes "A" to "F" inclusive.

Section III—COMMERCIAL BUILDINGS:
- Class A—Mercantile buildings, 4 stories and under.
- Class B—Mercantile buildings, 5 stories and over.
- Class C—Industrial buildings.
- Class D—Commercial buildings, not included in Classes "A," "B" or "C."

Section IV.—SEMI-PUBLIC AND CULTURAL BUILDINGS:
- Class A—Religious.
- Class B—Libraries, Academies, Colleges, Universities, etc.
- Class C—Hospitals, Detention Homes, etc.
- Class D—Semi-Public and Cultural Buildings, not included in Classes "A," "B" or "C."

Section V.—SCHOOL WORK (Built by civic taxes or bonds):
- Class A—High Schools.
- Class B—Intermediate Schools and under, 8 class rooms and under.
- Class C—Intermediate Schools and under, 9 class rooms and over.

Section VI.—PUBLIC WORK (Built by civic taxes or bonds):

Condition 5.—ADDITIONAL CLASSIFIED AWARDS, provided for in Condition Two, shall be made for exceptional merit in the sections and classes fixed in this Condition Five, viz.:

Section VII—GROUP PLANNING.

Section VIII—CITY OR COMMUNITY PLANNING.

Section IX—LANDSCAPE WORK:
- Class A—Residential sub-divisions, functioning as part of the civic plan or regional development.
- Class B—Parks, functioning as part of civic development.
- Class C—Private estates of less than one acre.
- Class D—Private estates of more than one acre.
- Class E—Landscape work not included in Classes "A," "B," "C" or "D."

Section X.—Any of the Fine Arts as distinguished from architecture.

Condition 6.—Only one award in any one year shall be made in each class or unclassified section, unless, in the opinion of the jury of award, the educational value of these awards could be better presented by more than one such award; in which case the jury may make not to exceed three awards in any class or unclassified section in any year.

Condition 7.—The manner of presenting the work to the jury of award shall be determined by the Executive Committee of the Chapter; however, nominations for awards in any of the sections and classes of Condition Five may be made to the jury in writing by any person.

RESIDENCE OF PIERPONT DAVIS, LOS ANGELES
Pierpont and Walter S. Davis, Architects
Awarded Certificate of Honor for Single Dwellings, Class "C"

Condition 8.—A special award of "DISTINGUISHED HONOR IN FINE ARTS" may be made for any executed work of pre-eminent merit in any of the fine arts to the author thereof. Not more than one such award shall be made in any one of the fine arts in any year. A classified award shall not bar a special award if the jury shall so find. A SPECIAL AWARD of "DISTINGUISHED HONOR IN ARCHITECTURE" may be made to the architect for any executed work of pre-eminent architectural merit if the jury shall find sufficient merit to warrant such distinction above all other work of all classes. Not more than one such award shall be made in architecture in any one year. A classified award shall not bar a special award if the jury so find.

Condtiion 9.—The awards shall be made by a competent jury of three architects, members of the American Institute of Architects, who are not members of this Chapter. This jury may, in considering awards in the city or community planning or landscape classifications, wherein the architectural problem is not predominant, call in special judges from the other professions to assist in making its award in such cases. The jury shall be appointed by the Executive Committee of the Southern California Chapter.

Awarded Certificate of Honor, Dwellings—Multiple, Class "E"

UNIVERSITY CLUB, LOS ANGELES
ALLISON & ALLISON ARCHITECTS

ENTRANCE, UNIVERSITY CLUB, LOS ANGELES.
ALLISON & ALLISON ARCHITECTS.

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WITMER & WATSON ARCHITECTS

Awarded Certificate of Honor for Multiple Dwellings, Class "F"

CALIFORNIA YACHT CLUB, WILMINGTON
EDWIN BERGSTROM ARCHITECT

BALCONY DETAIL, RESIDENCE OF JAMES SCRIPPS BOOTH, PASADENA MARSTON & VAN PELT, ARCHITECTS

RESIDENCE OF MRS. WILLIAM M. CLARKE
WILLIAM M. CLARKE ARCHITECT

GLENWOOD MISSION INN, RIVERSIDE, CALIFORNIA
MYRON HUNT ARCHITECT

Awarded Certificate of Honor
for School Work, Class "B"

GLENDORA INTERMEDIATE SCHOOL NO. 2, GLENDORA, CAL.
ALLISON & ALLISON ARCHITECTS

LIMONEIRA PACKING HOUSE AT SANTA PAULA
Allison & Allison, Architects
Awarded Certificate of Honor for Commercial Buildings, Class "C"

HUNTINGTON LIBRARY AT SAN MARINO
Myron Hunt and H. C. Chambers, Architects
Awarded Certificate of Honor for Semi-Public and Cultural Buildings, Class "B"

Awarded Certificate of Honor for Commercial Buildings, Class "D"

BANK OF ITALY, LOS ANGELES, CALIFORNIA
MORGAN, WALLS & MORGAN ARCHITECTS

UNION HIGH SCHOOL, PALO ALTO
ALLISON & ALLISON ARCHITECTS

Awarded Certificate of Honor for School Work, Class 'A'

ENTRANCE
UNION HIGH
SCHOOL
PALO ALTO
CALIFORNIA
Allison & Allison
Architects

Awarded Certificate of Honor for School Work, Class "A"

WILSHIRE COUNTRY CLUB
HUNT & BURNS, ARCHITECTS

Condition 10.—As one of the paramount purposes for which the awards are to be made is that of encouraging the creation of better architecture by our members and a finer art, awards must be rigidly confined to merit as shown, thus creating year by year a visible history of progress of the arts in California. An honor award must not be made unless in the opinion of the jury the work is of sufficient merit to be honored and so set apart, and when an award cannot be made the jury shall state in its report either that no exhibit was entered in the classification or that, if entered, sufficient merit has not been shown. The jury shall be ever impressed that it is its duty and obligation to thus forward the educational value of the awards.

Condition 11.—The jury in making its awards must consider the work in its entirety, though this shall not be construed to prevent an award being made upon any detail of such work. The jury shall, in making its decision as to merit, consider whether the work is an adequate solution of the problem involved. The jury shall

BEN R. MEYER ESTATE AT BEVERLY HILLS
Paul G. Thiene, Landscape Architect
Johnson, Kaufmann & Coate, Architects
Awarded Certificate of Honor for Landscape Work, Class "D"

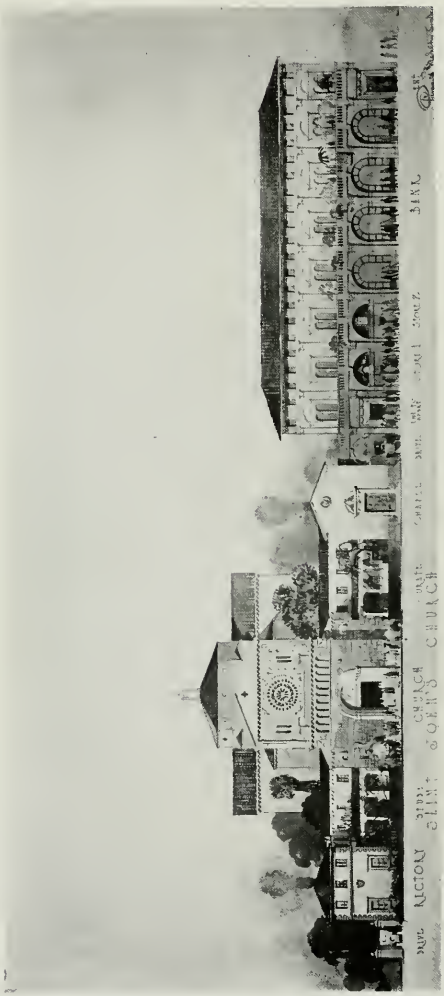
have the right and power to require the submission of additional information upon any exhibit submitted to it, and shall assure itself that the work is actually executed before making an award.

Condition 12.—A unanimous vote of the jury shall be necessary to make an award.

Condition 13.—The jury shall report in writing to the Executive Committee of the Chapter its findings, conclusions and recommendations, and the Executive Committee shall thereupon approve and accept the report, make the awards, and publish said report as a part of the records of this Chapter.

Condition 14.—The Chapter, under its seal and the signatures of its officers, will present, as evidence of the classified awards, "CERTIFICATES OF HONOR," and as evidence of the special awards, "CERTIFICATES OF DISTINGUISHED HONOR IN ARCHITECTURE" or "CERTIFICATE OF DISTINGUISHED HONOR IN THE FINE ARTS" as the case may be, properly setting forth the appreciation of the Chapter for the meritorious work done.

The jury of award was composed of Messrs. Arthur Brown, Jr., John Galen Howard and Ernest Coxhead, all of San Francisco. A special award for distinguished honor in architecture was made to Mr.



SKETCH FOR ST. JOHN'S CHURCH, LOS ANGELES
PIERPONT AND WALTER S. DAVIS ARCHITECTS

Awarded Certificate of Honor for Single Dwellings, Class "A"

RESIDENCE OF E. L. LIEBKE, LOS ANGELES
HENRY F. WITHEY ARCHITECT

Robert D. Farquhar for the W. A. Clark, Jr., mausoleum. The other awards were as follows:

Section 1—DWELLINGS, SINGLE:
Class A—E. L. Liebke residence, Henry F. Withey, architect; residences of Mrs. J. M. Witmer and Mrs. David J. Witmer, Witmer & Watson, architects.
Class B—Residence at Pomars Lane, Montecito, Soule, Murphy & Hastings, architects; residence of Mrs. Alice Lynch, Hollywood, Harwood Hewitt, architect.
Class C—Residence at 500 S. Rossmore St., Los Angeles, Pierpont & Walter S. Davis, architects; residence at La Canada, Harwood Hewitt, architect.
Section 2—DWELLINGS, MULTIPLE:
Classes A, B, C & D—No awards.
Class E—University Club, Los Angeles, Allison & Allison, architects.
Class F—Flintridge Country Club, La Canada, Myron Hunt & H. C. Chambers, architects; California Yacht Club, Wilmington, Edwin Bergstrom, architect.
Section 3—COMMERCIAL BUILDINGS:
Class A—Studio and stores at 405 S. Western Avenue, Los Angeles, Henry F. Withey, architect.
Class B—No award.
Class C—Limoneira Packing House, Santa Paula, Allison & Allison, architects.
Class D—County National Bank & Trust Building, Santa Barbara, Myron Hunt, architect; Bank of Italy, Los Angeles, Morgan, Walls & Morgan, architects.
Section 4—SEMI-PUBLIC AND CULTURAL BUILDINGS:
Class B—Whittier College, Allison & Allison, architects; Huntington Library, San Marino, Myron Hunt, architect.
Classes C and D—No awards.
Section 5—SCHOOLS:
Class B—Glendora Intermediate School No. 2, Allison & Allison, architects (no awards under Section 6, 7 and 8).
Section 9—LANDSCAPE WORK:
Classes A, B, and C—No awards.
Class D—Meyer Estate, Beverly Hills, Paul G. Thiene, landscape architect; Johnson, Kaufmann & Coate, architects; Severance Estate, 30 Oak Grove, Pasadena, Paul G. Thiene, landscape architect; Johnson, Kaufmann & Coate, architects.
Section 10—ARCHITECTURAL PHOTOGRAPHY & FINE ARTS:
William M. Clarke.

* * *

Why He Quit Architecture

BIG business is ruining the architectural field for the true artist, according to J. Barney Stewart, a Fellow of the American Institute of Architects and a student of the Ecole des Beaux Arts.

"To the doting mother who asks my advice about sending a favorite son to Paris to finish his architectural studies, I give little encouragement," said Mr. Barney in an interview with a representative of the New York Times. "Unless the boy is both an artistic genius and a first-

class business man, there is little hope of his success in this field of activity today.

"The man with a smattering of architectural knowledge who is a good business getter, astute in the ways of the business world, which the real artist rarely is, will win every time over the more artistic man who considers art first and business second, unless that man has a good business manager or is himself a good business man. Under modern conditions the most important thing is getting the job. Some young men are learning how to do this, and nothing more. Consequently, important work frequently goes to men who are thoroughly unprepared, with little or no previous education, no knowledge of architectural history, and with scarcely any knowledge of the appearance, when built, of the features which they handle with such facility.

"A distinguished advocate of the Academic French School is said to have made the remark that 'An architect is but a draftsman with a job.' This, after all, is pretty disheartening to a man who has studied for years and taken high honors in his chosen profession. As the rare combination of unusual business ability and notable artistic achievement is not found many times in a century, the majority of architects have the humiliating experience of working most of their lives under the direction of a chief whose business acumen is greater than his artistic ability. There are outstanding exceptions, of course, of men who have both talent for art and cleverness in business.

"Thirty years ago the architectural standard in this country was pretty low. This standard has been raised through the development of our technical schools, and by men of ideals and vision going over to the Ecole des Beaux Arts in Paris. As the profession became more crowded and competition more keen, it was found that the young architect who came through from the Ecole des Beaux Arts took the lead. There it was that he learned the art of presentation or, as the layman would say, "drawing." The profession then degenerated into a competition of presentation, and many designs that looked well on paper were constructed. These were afterward found to be unsuccessful. The standard of architecture in this country, however, was raised by these men, who deserve credit for what they have done for American architecture.

"We went through a period of great prosperity. Great interest was taken in architecture, and the American people for the first time studied seriously the monuments of Europe.

"The problem which confronts the architect today is getting the work, and the most successful are those who are good salesmen and know how to get their goods on the market. It is now a competition of business getters against business getters. Art has become a secondary consideration in the scheme, and the artist has become in some instances merely a spoke in the wheel of business. For a time the field was an interesting one, and young fellows had a chance and the time to do original and constructive work on their own problems, but as competition crept in and practical men saw a future of skyscrapers and public buildings representing millions, the field was greatly enlarged by the entrance of a class of men whose handling of big enterprises gave them the money to employ artists as draftsmen.

"As business ability is so rarely combined with artistic genius, the chances of an architect winning distinguished success are daily lessening. If, on the other hand, the architect is a great business man and goes into the profession with the avowed intention of employing artists to work for him, he will not make as much money (which is his object) as if he turned his business ability into other channels."

DETAIL OF FORECOURT AND SHOPS, GRAUMAN THEATER, HOLLYWOOD
CALIFORNIA MEYER & HOLLER, ARCHITECTS

A Theater Designed in the Egyptian Style

By FREDERICK JENNINGS

ARCHITECTS who visit the new Grauman Egyptian Theater in Hollywood are likely to be rewarded for their exertion, since the design is most unusual and therefore replete with interest. Time alone will demonstrate the wisdom of the owner in building a playhouse possessed of so many extremes in design. The architects are Messrs. Meyer and Holler of Los Angeles.

The usual conception of Egyptian architecture, because of the fact that most of the remaining examples of such architecture have stood the weathering of centuries and are in ruins, is that the style is one that is coarse, monotonous and cold, but a careful study was made of many restorations of Egyptian color decoration, and the most accepted examples of such color decoration were a guide in the decoration of this theater. The result was that the adoption of a most harmonious color scheme throughout the theater was accomplished.

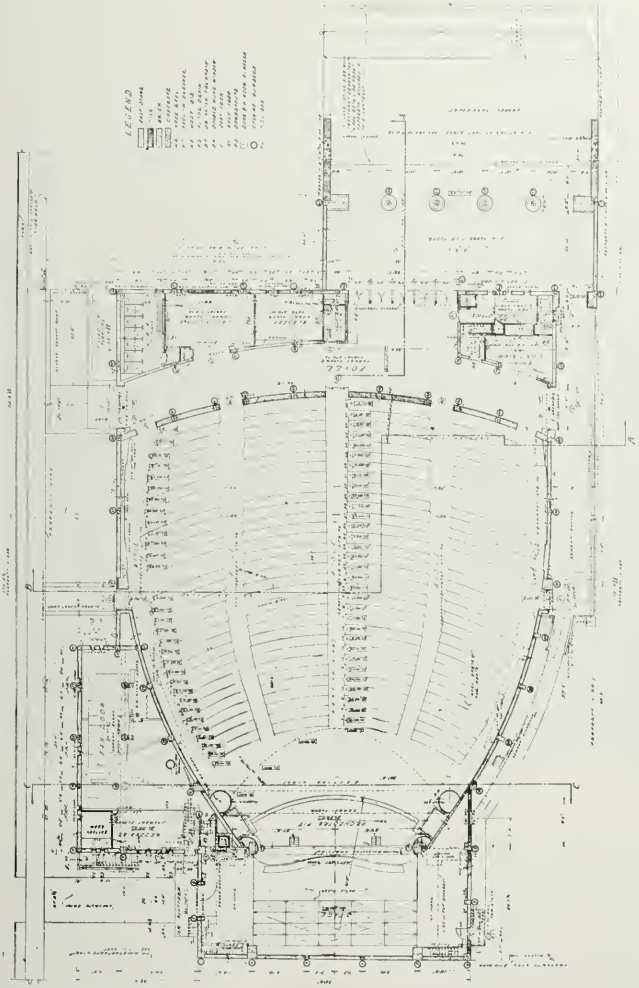
An outstanding feature of the manner in which the problem of design was approached is that care was taken to have highly decorative and elaborate motives used in contrast with extremely simple and plain surfaces. In this respect the theater offers a most pleasing contrast to many theaters, in that the entire interior is not completely covered with decoration and ornamentation on every available surface. Fortunately the architects were permitted to have complete charge of the designing and construction of the theater, as well as all equipment and fittings. Therefore, such things as the theater chairs, carpets, draperies, stage curtains and furniture were all designed within the architects' organization, and the result was decidedly pleasing in that the same character of refinement and detail is carried throughout the entire theater, making every part of it harmonious.

The approach to the theater is through a magnificent courtyard opening on Hollywood Boulevard near McCadden Place. Studded with ornamentations that bring to mind the motif of the new playhouse, this courtyard, which would have delighted the eye of Cheops himself, gives a charming vista to the main doors of the film temple. Lined on the right with palm trees and potted plants that embower a sparkling fountain, the transmosaic left martials a row of Oriental shops that will naturally delight the theater's patrons. Stairs like those that run to roof tops in distant Asia Minor give access to the planes above, where one may view the decorated front of the theater from a charming angle.

Like all other sections of the temple of art, the doors, vestibules and lobby of the film palace are painted or carved with hieroglyphics. Even the shades of the chandeliers bloom with picture paintings of the ancient race that struggled to compile an alphabet. Vases, large and small, made like those of mystic Egypt, are a part of the decorative scheme, while from every side gleams the birdlike countenance of Isis, acclaimed by the Egyptians as the supreme of all goddesses.

Coming from the bright sunlight of the forecourt, which is 45 feet wide and 150 feet long, then passing through a massive Egyptian colonnade, one enters the lobby, 75 feet wide and 25 feet deep, with its ceiling 24 feet above the floor, and next passes into a curved foyer leading to the aisles of the auditorium. It is then that the true glory of Grauman's dream is realized, and one comprehends that only a surpassing vision could have given form to such a wealth of detailed harmony.

VIEW OF INTERIOR, GRAUMAN THEATER, HOLLYWOOD
MEYER & HOLLER
ARCHITECTS



PLAN, GRAUMAN THEATER, HOLLYWOOD
MEYER & HOLLER ARCHITECTS

The film temple's auditorium is 114 feet wide and 118 feet long. The standard stage is 30 by 73½ feet, with a height from its floor to the underside of the gridiron of 54 feet. Seats are provided on the main floor for 1760 persons.

Beauty and safety were the two main objects that governed the designing of the Egyptian Theater. It is a Class A reinforced concrete structure throughout, and has hollow tile filler walls. From an engineering standpoint the building is especially interesting because of its two-plane roof construction. The wall between the high and low ceilings was particularly adapted to the location of a structural member, and the engineers made use of this wall by building it in the main carrying member of the roof. This is a large arch with a clear span of 114 feet, sustaining a load of 1,500,000 pounds, and designed on the elastic theory, as

ENTRANCE PORTICO, GRAUMAN THEATER, HOLLYWOOD
Meyer & Holler, Architects

both a one-hinged and a two-hinged arch. This double precaution was taken to ensure safety during the possible occurrence of an earthquake.

The main arch, in turn, supports twelve lesser arches, six in the high roof and six in the low, the former being carried by a reinforced concrete truss directly in front of and over the proscenium arch, which also supports a chamber 15 by 56 feet, in which the magnificent Wurlitzer pipe organ is ensconced. This permits of an arrangement for diffusing the musical tones that is believed to be unsurpassed in any auditorium in the world.

The six trusses of the lower roof carry the projection room and fireproof film vault. The roof itself is supported on the bottom chords of the arches and creates a flat, box-like structure, which is very efficient in resisting any earth disturbance. The top chords of all the arches

are braced one to the other and to the building's walls by strut members, giving a very rigid frame, with the added advantage of being open to inspection at all times. The exposed sections of the arches have been waterproofed, and, being in a more or less perpendicular position, water or moisture cannot penetrate to the steel. The bottom chords of the arches, lying in the plane of the roof and covered only by the roofing paper, are exposed to practically the same temperature as the free standing top chords, so that temperature stresses are very nearly eliminated.

The theater is ventilated and heated or cooled by the best modern equipment, the system consisting of fans, motors and air washers. The air is drawn in through an intake some 60 feet above the street level, this being done to insure the purity of the azone, and is conveyed to the

INTERIOR GRAUMAN THEATER, HOLLYWOOD
Meyer & Holler, Architects

air washer through a column that is patterned after the famous obelisk known as Cleopatra's Needle, with its pointed top adding to the Egyptian architectural beauty of the film temple's exterior. After being cleansed in the washer, the air is conducted through coils for heating in winter or cooling in summer. When properly tempered, it is diffused through the building through ducts that connect with an adequate fan system.

The electric lighting of the theatre is in three colors, all controlled from a large dead-face switchboard situated on the stage. A three-dimmer system is connected with this, while the auxiliary and emergency lighting is supplied by a battery system located adjacent to the fan room.

One of the features of the new film temple, giving added lustre to its beauty, is the variety of vivid colors used. These rich hues extend

APPROACH TO THEATER, SHOWING FORECOURT AND SHOPS, GRAUMAN THEATER
HOLLYWOOD MEYER & HOLLER, ARCHITECTS

PROSCENIUM AND ORGAN GRILLE, GRAUMAN THEATER, HOLLYWOOD CALIFORNIA
MEYER & HOLLER, ARCHITECTS

to the lounging rooms off the grand foyer, with their highly colored ceilings topping plain stone walls, and are to be found throughout the whole architectural scheme. The color effects show to especial advantage on the columns, six feet in diameter, that flank the stage. Each bears striking carvings symbolic of festivities and ceremonials in vogue among the ancient Egyptians.

* * *

The Story of Steel

A six-reel motion picture film, "The Story of Steel," has been produced under the auspices of the U.S. Bureau of Mines of the Department of the Interior and the U.S. Department of Commerce in co-operation with the United States Steel Corporation. It will be used extensively in the United States and abroad for the purpose of acquainting the peoples of the world with the many interesting operations employed in the American steel industry.

The film depicts the various processes from the mining of the iron ore to the finished steel product, passing through the transportation period, blast furnace operations, and the making of steel by the Bessemer, open-hearth and electric processes. The manufacture of rails, plates, shapes, axles, rods, wire products, pipe, tin plate and other products of steel are told in a graphic way, and before the picture is brought to a close the audience is shown the many welfare and social activities which are carried on by the United States Steel Corporation for the benefit of its employees.

The film will be loaned without cost to all dependable persons desiring to use it for educational purposes. Application should be made to the U. S. Department of Commerce, Washington, D. C.

* * *

Electric Heating of Residences

THE electric heating of houses is an accomplished fact in Tacoma, and an interesting report upon it forms the subject of Bulletin No. 15, Engineering Experiment Station, State University, Seattle, Washington. The report is written by Mr. Edgar Allen Loew, Associate Professor of Electrical Engineering.

The municipally-owned Tacoma lighting plant was completed and put into operation in 1912, and two years later the city decided to stimulate the use of electric heating in order to market as much as possible of the output of electrical energy it possessed. A low energy charge of ½ c per kw. was adopted and a campaign inaugurated to induce people to install electrical furnaces and water heaters. The report goes into detail on costs of installation and operation and is decidedly interesting.

The author shows that at the low rate given, the annual cost of heating a house with an electric furnace is practically equal to the cost of heating with a coal-fired furnace with coal at $9.20 per ton. The efficiency of heating by electric heaters located in the space to be heated is 100 per cent. The average efficiency of the coal-fired furnace was assumed to be 45 per cent. The best planned, best installed and most efficiently operated warm air furnace yields a maximum efficiency of about 60 per cent.

BEFFROI AND HOTEL DE VILLA, BRUGES

Some Cathedrals and Cathedral Towns

From the Notebook of a Wanderer

By E. N. KIERULFF, R. S. M.

THOSE who in their journeyings abroad choose the byways rather than the highways are most generally well recompensed, for to them is given a picture at the turning of every tiny, twisting street, a glimpse into forgotten courtyard gardens and the memory to carry away with them of some vast dim interior that sends them out into the sunlight, wondering whether it were not all a dream, a mirage, perhaps.

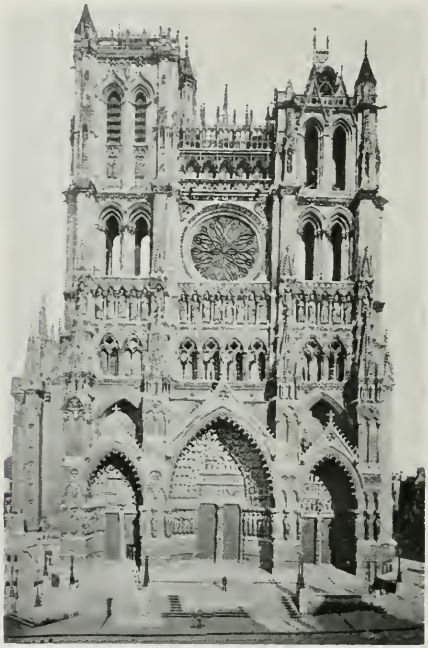
Much has been written and more has been said about the principal cathedrals and their towns, but to each of us there appears some bit of carving, some tone in age-old walls, some light filtering in through windows the making of which is today a lost art, that the next one of us may miss entirely or perchance overlook.

To the architect and to the student the beauties of structure are never lost, for they see them through trained eyes and analyze each detail from a technical standpoint. With the layman, however, many of the details are lost, and no doubt he loses much. On the other hand, the beauty of the building, its symmetry, its lights and shadows, and its values both as an historical object and as a colossal piece of master workmanship, are seldom overlooked.

I first saw the Cathedral of Amiens on a cold, grey winter day, when the great mass of the building stood stark against leaden skies. It seemed to repel rather than to welcome a closer inspection of its fine old lines, grinning gargoyles, and immense buttresses. The sandbags had but recently been removed from the beautiful facade and sculptured portals, for during those dark days of the Somme it stood menaced by German shell fire. The interior, even on this grey day, gave the impression of an airy gracefulness behind which stood a grim, somber, massive

strength. The light was poor, and the rose windows, chapels and choir were not seen to advantage; but on my next visit, some months later, I had the good fortune to find Amiens and the Cathedral bathed in a soft autumn sun; the stones had now a warm tone, and inside the whole structure was flooded with a soft golden-rose light. The rose windows appeared not windows, but great flowers unfolding to a kindly sunshine. The cathedral is Gothic throughout, and the critic who said that this edifice represented one of the finest examples of Gothic structure in Europe has in no manner made a broad statement.

The town of Amiens, once the capital of ancient Picardy, offers to



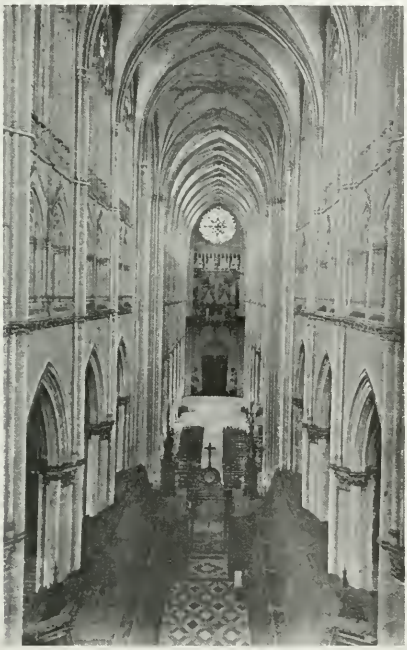
CATHEDRAL D'AMIENS

the traveler an intimate view of the life of a busy little provincial town, with its museum of antiquities, its parks and public places, and its glorious cathedral. During the war Amiens was a British railhead, and suffered from the occupation, as it was constantly shelled.

Tournai, in Belgium, will hold a place in my mind for some time to come as one of the cleanest and most interesting towns in this portion of Belgium. Situated not far over the Belgian-France frontier, in flat green country, its spires and domes lend it almost the austerity of a city. It is not until leaving the central station, and wending one's way through curious tiny streets that the traveler realizes that it is just a little village, fascinatingly arranged and interestingly built.

The Cathedral of Tournai is a mixture of four types of mediaeval

architecture and a beautiful example of each. It is a cruciform basilica borne by pillars, and besides the central tower there are four others, giving it almost the effect of a turreted castle. A portion of the building is Romanesque, two of the towers are of the transition era, and one of them is purely Gothic. The interior demands a good light to bring out its richness and graceful beauty, and to enhance the rose window set in the facade. This window was added long after the completion of the building during a period of restoration. A truly majestic and wholly beautiful church, it merits a close inspection, and will send the traveler away with a sense of having gained something intangibly fine.



INTERIOR CATHEDRAL D'AMIENS
Showing Rose Window

The Cathedral of Notre Dame in Antwerp is too well known to dwell at length upon here. Each time I am in Antwerp I go at once to sit for an hour and gaze at those two works of Rubens which seen once must be seen again, for it is not until the second visit that the full pathos, the suffering, and the mystic beauty of both canvases are brought full upon one. Somehow I always feel that, take away "The Elevation of the Cross" and "The Descent from the Cross," and the beauty of the Cathedral of Antwerp is lost forever.

The Hotel de Ville and the old Guild Houses offer much that is fascinating and interesting in their splendid old rooms filled with tapestries, paintings, and furniture that in themselves are a sure reward for

CHATEAU DES COMTES DE FLANDRE, GHENT

HALL, CHATEAU DES COMTES DE FLANDRE, GHENT

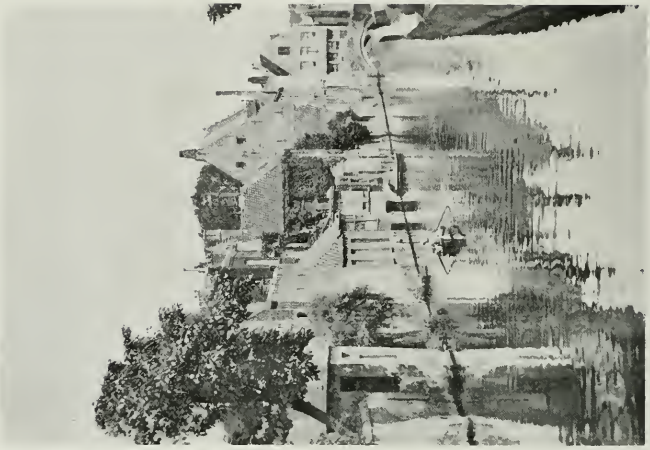
the time spent in seeing and studying them. Many of these treasures were brought by the Spaniards or made for them by the masters of arts and crafts in Antwerp during the Spanish occupation of the Netherlands.

Ghent—the very sound of the name calls up to me a soft spring day, with warm sunlight filtering down tiny streets—brings a picture of age-old churches, their stones tinged a soft red-brown, and the old belfry its stones blackened and worn with all its years. It is in the Cathedral of St. Baven that one may see Memmling at his best and study and enjoy his famous altar piece—perhaps the finest of his works. St. Baven is rather unique in that there is so much marble used in its interior, marble of black predominating and used profusely. From the plain exterior to step into so enriched and heavy an interior proves rather startling, for one is expecting a simple, unadorned church. But the proportions are pleasing, and the marble is used in such ways that it does not offend the eyes, and a second visit brings a sincere appreciation of the lavish embellishment of this cathedral.

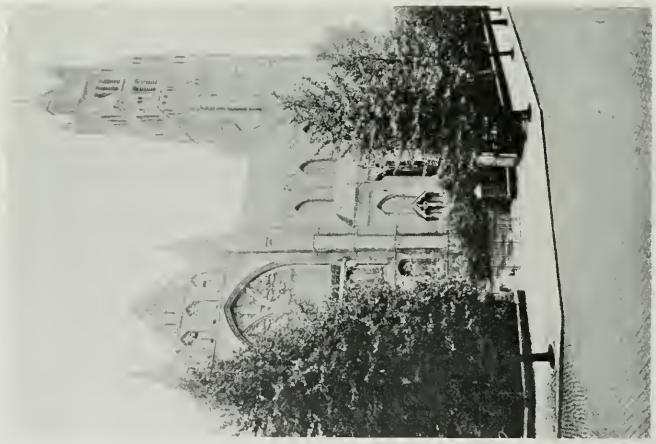
Ghent the town, with the possible exception of its neighbor Bruges —and this is, after all, a matter of personal taste—is one of the most fascinating of the smaller towns of Belgium; quaint streets, quaint people, a drowsy atmosphere which in reality masks a very busy and intent people; for no one is idle these days in Belgium. A good third of the commerce and traffic of Ghent is carried along its canals, and along the banks of these one may stroll and see a bit of old Ghent, old Belgium, old world. Barges manned by long sweeps or towed by browned, sweating giants, bare of throat, arms and feet, who shout hoarse jokes or raw epithets at their neighbors, but who give you in answer to yours a sunny smile. Great loads of hay, of bricks, of farm produce, or casks of wine go seaward to some waiting port or busy market. Best of all things along the canals is that grim old pile, the ancient chateau of the Counts of Flanders, called Le Chateau des Comtes. One may easily spend a day within its walls, along its battlements, in its arched and vaulted rooms; visit the dungeons, the great banquet hall, the hall of assembly, the kitchens, and stables, and fancy that one hears the voices of its people of long ago, hears horsemen clattering under the archway into the courtyard. The traveler is very loath to turn away from Ghent, and many a glance is sent back to its spires and domes as a very modern train bears him away from a very old town.

This very modern train which carries the traveler away from old Ghent brings him in a short hour to another charming old town—a town which even more than Ghent has kept the atmosphere of oldness and quaintness. Here one finds more canals, more streets of old, old houses, and a cathedral adjoining which is a hospital of mediaeval fame, still kept up, modernized only in its equipment. And this town is Bruges —the two of them are always thought of at the same time, spoken of in the same breath—Ghent and Bruges.

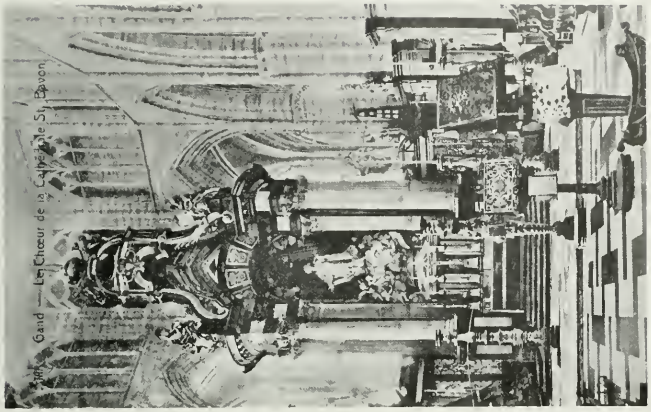
The Cathedral of Bruges, I think, is one of the friendliest of all the cathedrals of Belgium. Many there are who will disagree with me here, but to me each time I go to Bruges it seems as though there is a friendly greeting from the warm, colorful walls of this old church. The light filters in soft and ruddy, and falls on walls which long ago were polychromed—the color applied in all its richness straight onto the stone, and this softened by a few hundred years gives to the entire interior that tone that to me is so warm and so friendly and so different. I shall leave the interior for a moment to mention that this church is almost entirely built of brick, a rather rare thing, for all these old buildings were largely constructed of stone blocks. To return to the interior: in



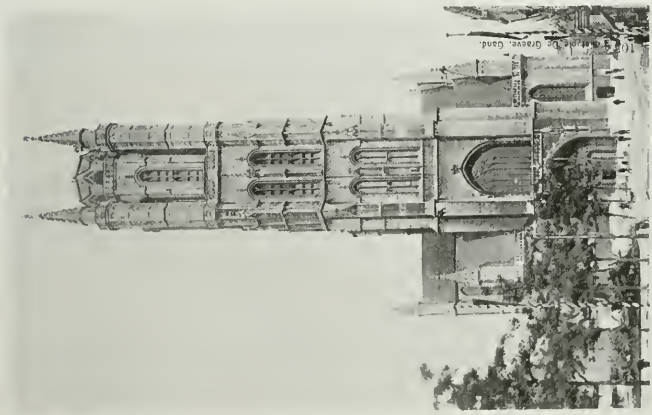
CANAL IN BRUGES



CATHEDRAL SAINT SAUVEUR, BRUGES



INTERIOR CATHEDRAL ST. BAVON



CATHEDRAL ST. BAVON, GHENT

the choir there are some very beautifully carved Gothic choir stalls, and a portion of the wall decorations consist of a number of the armorial bearings of the Thirteenth Chapter of the Order of the Golden Fleece; but the most important and at the same time the most beautiful things in this church are the seven colossal pieces of Flemish tapestry. These in themselves are fully worth a visit to Bruges. Bruges boasts two cathedrals, this one the Cathedral of St. Sauveur, after a fire was rebuilt in 1183 and has ranked as a cathedral only since 1834. The other, Notre Dame de Bruges, is a 12th-13th century edifice.

Notre Dame does not give me that feeling of cheer and warmth, but it commands my close study and appreciation of its age and its treasures. It houses among the canvases and sculptures with which it is adorned a statue of the Virgin and Child—one of the very few pieces seen in this part of Europe, by Michael Angelo, done by him in 1503 and purchased by a merchant of Bruges. one Jan Mouscron. Probably the

CLOTH HALL AT YPRES

most famous of all the treasures in Bruges are the two tombs in bronze of Charles the Bold and his daughter Mary of Burgundy; these two examples of delicate and exquisite work in bronze lie in a small chapel in Notre Dame.

Across a narrow little street from the entrance of the cathedral stands the courtyard doorway of the ancient hospital of St. Jean. A visit to its chapel, to the tiny museum which houses a small collection of some of the works of Memmling, among them the famous Shrine of St. Ursula, and a walk about the quiet cloisters and old gardens, will well repay for the hour or two so spent.

The canals of Bruges offer to one who has a few spare hours or better a morning, a series of charming pictures—tiny waterways that bring up vivid memories of Venice—walled gardens a mass of blossoms, ivy and weeping willows; quaint little houses, for all like toys, and any number of charming stone bridges that will scarcely permit the passage of a small boat.

The streets are most interesting, full of quaint shops, excellent cafes and restaurants, and bustling with life and activity. When market day is being held the square near the Hotel de Ville and the Belfry presents an almost old-world picture. If one looks back with regret at leaving Ghent, he looks back upon the last of Bruges as the train steams away over the flat green meadow-lands with a silent vow that he will surely return some day.

Those who have gone to Ypres to see and to wonder must surely have turned away with tear-dimmed eyes after having seen. Those who saw Ypres before busy hands began tearing at the wreckage may conjure up the picture of the silence, the desolation and the utter shambles that was once a prosperous and charming little city. When first I saw it, it was a city of silence, with just a few people who had straggled back to find their old home sites or to visit lonely little crosses bleaching in the winds and rains along the canal banks.

RUINS CLOTH HALL AT YPRES

True that today many hands are at work rebuilding, and Ypres hums with the teaming and noise of workmen, great lorries rumble down the narrow streets as in days of old, but no cheery Tommy sits now at the wheel. In his place there is a stout Belgian or Flemish lad, and his load not shells or men, but cement, bricks and lumber. Quite true, they build Ypres anew, and quite true we are told that soon it will be one of the most modern cities of Europe; but in that very building there is pathos and sadness, for almost every building in Ypres will be a new one, and like the fingers of an accusing hand the broken, hurt and crumbling walls of St. Martin and the once perfect and lovely Hall of the Drapers—the Cloth Hall of Ypres—point into the sky, and as far as they may see out there to the west, where the slopes of Kemel are faint in the autumn haze, is a land of death, destruction, desolation and misery brooding quite alone.

NATURAL POOL EFFECT ON THE ESTATE OF MR. WM. J. LEET, SAN JOSE CALIFORNIA MACRORIE-McLAREN COMPANY, LANDSCAPE ENGINEERS

LANDSCAPE PLAN FOR THE ESTATE OF MR. W. H. TALBOT, HILLSBOROUGH, CALIFORNIA
MacRorie-McLaren Company, Landscape Engineers

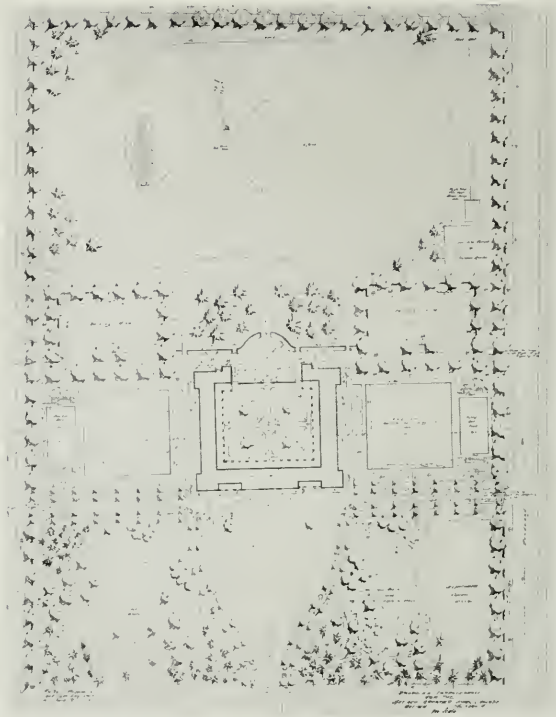
The Work of the Landscape Engineer

By IRVING F. MORROW

TIME was when a man might call himself an architect and conceive an architectural design as a pure abstraction. When a building was built the rooms would assuredly be furnished, and on the outside certain things—steps, terraces, balustrades, planting—would eventually be brought into contact; but just what and how was a matter of relative, if not complete unimportance. Interiors were so many wall surfaces and exteriors were so many elevations, and the sum of them all made a building.

Those days, happily, are passing. Serious designers realize that the total effect is the important thing and that the architectural structure is only one element of what goes into its making; a very necessary element, to be sure, but one which is, after all, not self-sufficient. The conception of a room without contents is anomalous; the conception of a building without surroundings is no less so. The interior decorator and the landscape architect or engineer, whether in the same person with the architect or as different individuals, must have a hand in the design if anything consistent and comprehensive is to be achieved.

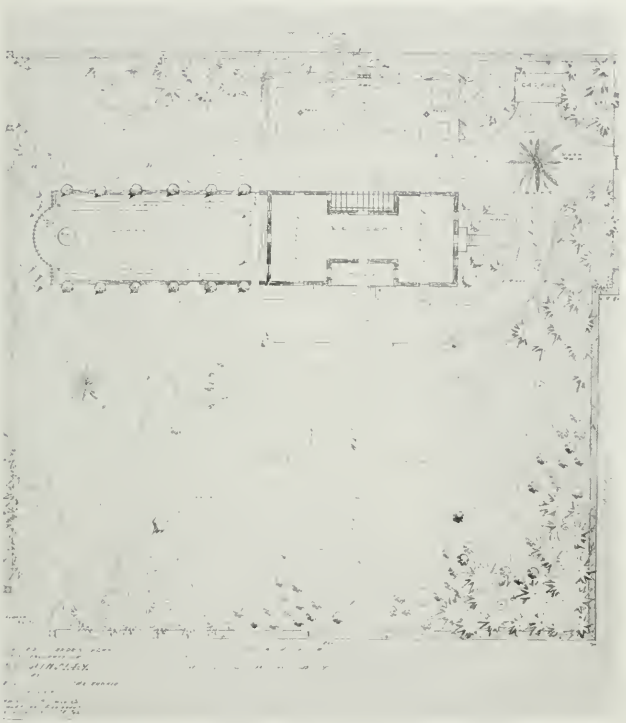
Many people still conceive the landscape architect merely as a nurseryman who makes plants grow and uses their botanical names. It frequently happens, as a matter of fact, that the landscape architect is also engaged in the nursery business, just as the interior decorator often handles furniture and drapes. But it must be borne in mind that these allied business enterprises are in no sense of the word essential to the activities of these several people in their capacities of landscape architect and interior decorator respectively. The thing which differentiates the



PLANTING PLAN FOR THE ANTIOCH GRAMMAR SCHOOL GROUNDS, ANTIOCH, CALIFORNIA
MacRorie-McLaren Company, Landscape Engineers

landscape architect from the mere nurseryman is the same thing which distinguishes the architect from the builder—the ability to design. He may or may not raise and deal in the plants which he uses; but his specific function as landscape architect is to conceive the ways and means whereby a building and its surroundings are to be brought into harmony.

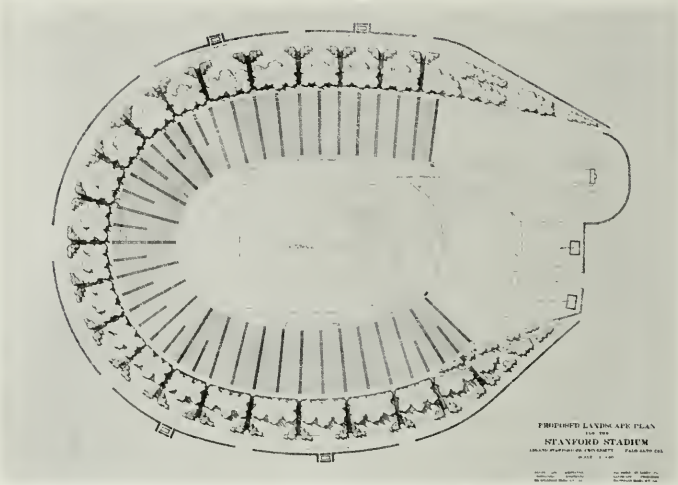
Obviously more things are here involved than making plants grow. It may be a question of grading; a phase of architectural composition which is often of the foremost importance, and yet perhaps one of the least understood and most frequently bungled. Garden (semi-architectural) features and furniture often enter into the design—steps, balustrades, urns, sculpture, pools, fountains, pergolas, and the like. The mere selection of plants is a field offering wide scope to the imagination; landscape designers are as prone as architects to credit the Renaissance with an impossible omniscience and finality in all which touches their



GARDEN PLAN FOR MR. AINSLEY, CAMPBELL, CALIFORNIA
MacRorie-McLaren Company, Landscape Engineers

work. These and other analogous considerations are entirely apart from the question of where plants are to be planted, or how they shall be made to thrive. It will thus be seen that the profession is intimately bound up with engineering, sculpture,. and architecture proper, quite apart from the details of the nurseryman's trade.

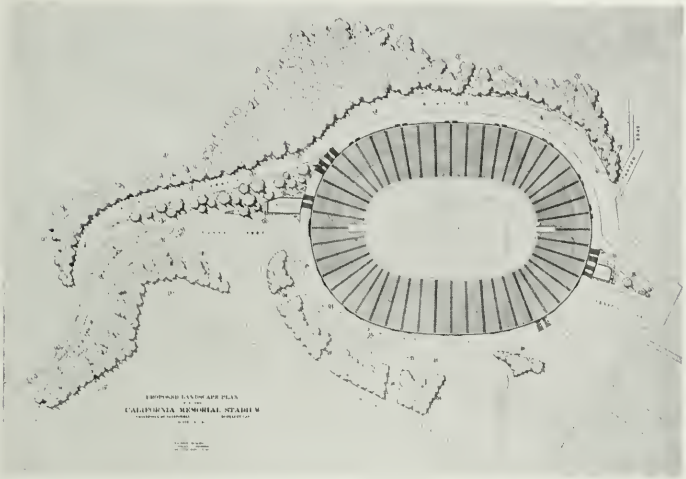
Nor must it be imagined that the activity of the landscape artist is confined to architectural collaboration in setting off buildings. Much work in parks, public and private, involves no structures at all, sometimes not so much as a road or a path. Here the task is the enhancement, or even the creation of landscape pure and simple. This is by no means the least significant part of the work, nor the least difficult. There is in growing nature a generally appreciated tendency toward beauty, interest, and reconciliation with damage. Things ordinarily grow beautifully, or comprise aspects of beauty. The scars which man



LANDSCAPE PLAN FOR THE STANFORD STADIUM, LELAND STANFORD, JR. UNIVERSITY
PALO ALTO, CALIFORNIA
MacRorie-McLaren Company, Landscape Engineers
Baker & Carpenter, Construction Engineers

makes heal over in surprisingly few seasons. This meliorative trend leads uncritical people to suppose that all beauty resides in nature's own workings, and that all that is necessary to achieve the beautiful is to allow her to work out her own salvation without interference. It is true that for our materials we go to nature, but sensitive and creative minds are never content to leave them in the prodigal but haphazard state in which she gives them. The painter either conceives ideal landscapes, or alters those which he copies as much as may be needed to enforce the expression of his ideas. The landscape architect accomplishes the same end with nature herself instead of in pictures.

That such creative tasks present themselves is not appreciated by the layman. In fact, with his limited vision, he is prone to conceive all interference on the artist's part as falling into one category with box hedges clipped into balls, pyramids, and roosters, and to resent it as a meddlesome intrusion. He is unaware that some of the most natural landscapes, some of those with which he is most familiar, are largely or entirely man-made. (Such, for example, is the case throughout the length of San Francisco's Golden Gate Park). It will appear obvious on reflection that such landscape creation offers scope for imagination no less than does composing with the architect's range of building materials; in fact, it is not too much to say that novel and unprecedented effects may be produced by a truly creative imagination. Vast possibilities, for instance, lie open before the designer who studies the use of native Californian trees and shrubs in creative design.



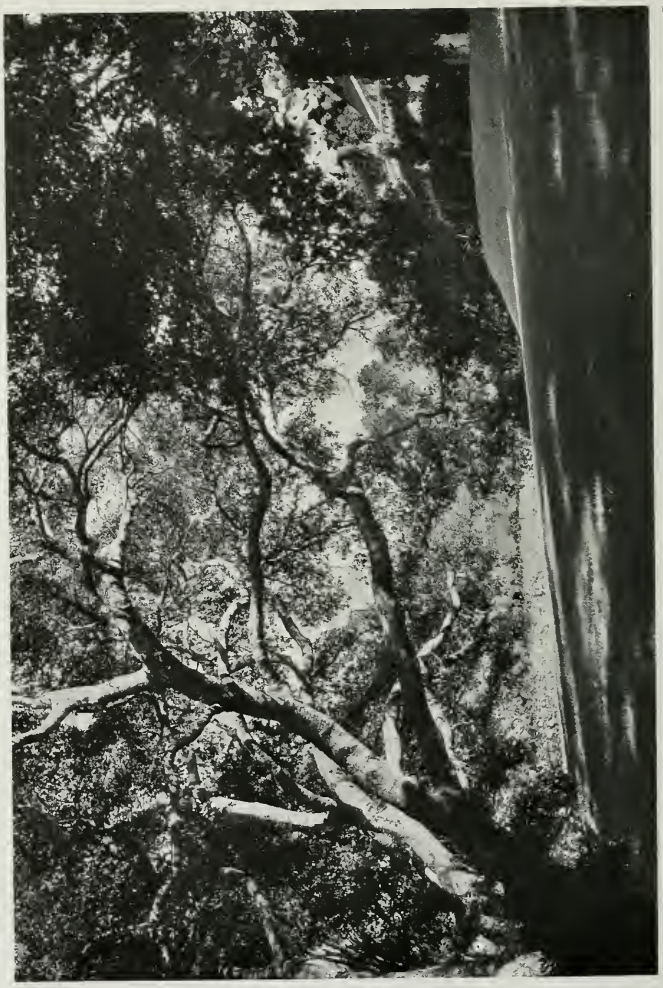
LANDSCAPE PLAN FOR THE CALIFORNIA MEMORIAL STADIUM, UNIVERSITY OF CALIFORNIA, BERKELEY, CALIFORNIA
MacRorie-McLaren Company, Landscape Engineers

Composition in landscape design, as in architecture proper, falls, according to the circumstances involved and the temper of the designer, into one or the other of two broad classes—the picturesque or irregular, and the formal. One reason, perhaps, that the public in California has failed to recognize the true value of the design factor of the landscape architect's service is that a great part of his work has been mistaken for natural landscape. Much of the work of the MacRorie, McLaren Company, as here illustrated, is of this naturalistic type. This is only as it should be. There is a definite accord between the informal character of our native countryside and our informal material development and social traditions, which seems to suggest an analogous spirit in deliberate landscape design. Artificiality, unless restricted in area or on a comparatively small scale, is inharmonious with the larger setting. Whatever may be in store for the future, we are still unprepared for our Versailles. The MacRorie-McLaren Company have embraced opportunities for a higher degree of formality at the Panama-Pacific International Exposition of 1915. They have been particularly happy in effecting that slight touch of "civilizing" required to bring the native landscape into touch with some of our larger country homes.

* * *

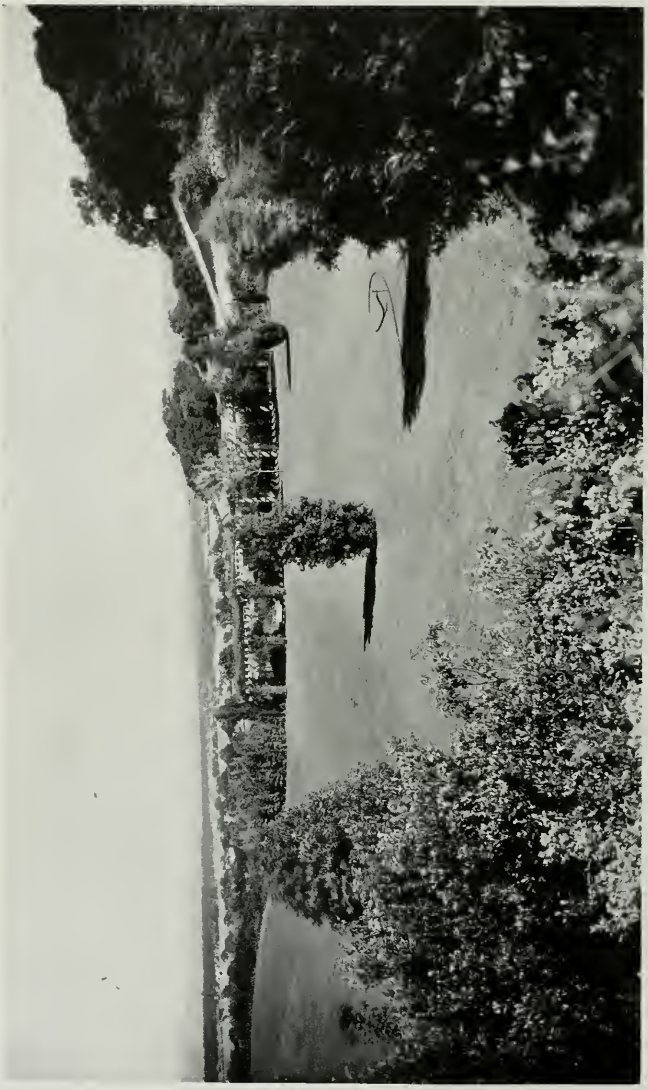
Fifteen-Story Physicians' Building

The Medical Dental Building Corporation of San Francisco has commissioned Architect Geo. W. Kelham to prepare plans for a physicians' and dentists' office building to cost $1,000,000 and to occupy the northeast corner of Post and Mason streets, San Francisco. The building will probably be 15 stories high.



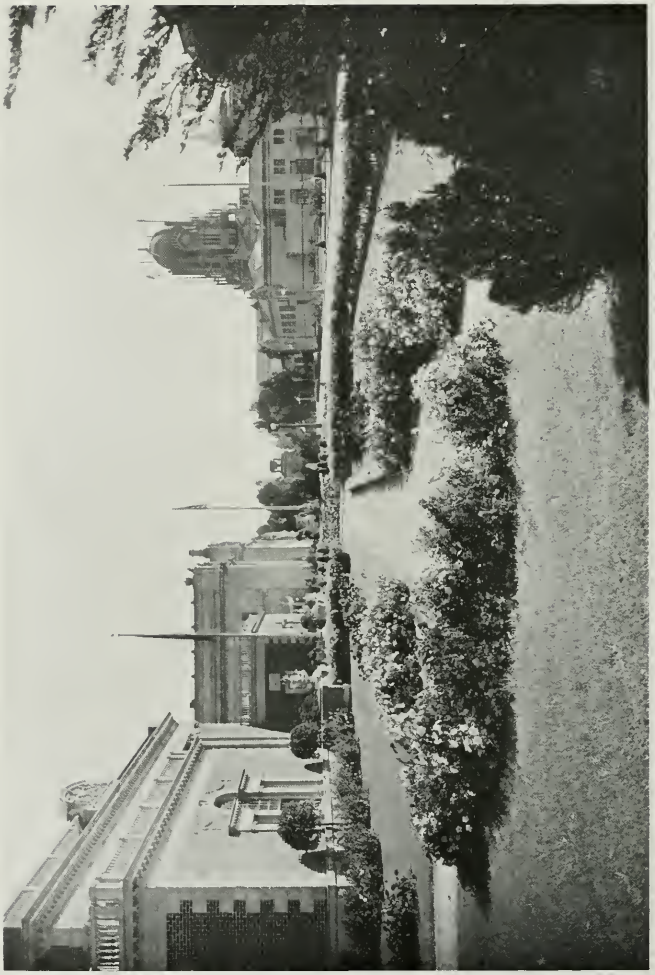
NOTHING IS MORE ATTRACTIVE THAN BROAD SWEEPING LAWNS SURROUNDED BY OUR NATIVE OAK TREES AND SHRUBBERY. MACRORIE-McLAREN CO., LANDSCAPE ENGNRS.

AN ATTRACTIVE FLOWER BORDERED WALK THROUGH A NATURAL SETTING OF OAK TREES
MACKORIE-McLAREN COMPANY, LANDSCAPE ENGINEERS



OPEN LAWN EFFECT ON THE ESTATE OF MR. ROBERT OXNARD, REDWOOD CITY CALIFORNIA MACRORIE-McLAREN COMPANY, LANDSCAPE ENGINEERS

REAL ESTATE OPERATORS ARE APPRECIATING MORE AND MORE THE VALUE OF PLANTINGS. BALBOA TERRACE SUBDIVISION, SAN FRANCISCO, CALIFORNIA MACRORIE-McLAREN COMPANY, LANDSCAPE ENGINEERS



THE VALUE OF TREES AND PLANTS WAS APPRECIATED AT THE PANAMA-PACIFIC EXPOSITION MACRORIE-McLAREN COMPANY, LANDSCAPE ENGINEERS

THE AUSTRALIAN BUILDING AT THE PANAMA-PACIFIC INTERNATIONAL EXPOSITION DEMANDED THE USE OF NATIVE AUSTRALIAN PLANTS
MACRORIE-McLAREN COMPANY LANDSCAPE ENGINEERS

FORMAL SUNKEN ROSE GARDEN AND LILY POOL ON THE ESTATE OF MR. ANDREW WELCH, SAN MATEO, CAL. MACRORIE-McLAREN CO, LANDSCAPE ENGINEERS

AN EFFECTIVE PERGOLA TREATMENT IN A NATURAL SETTING
MACRORIE-McLAREN COMPANY LANDSCAPE ENGINEERS

NATURAL LAKE EFFECT ON THE ESTATE OF MR. WM. T. SESNON, APTOS CALIFORNIA
MACRORIE-McLAREN COMPANY, LANDSCAPE ENGINEERS

THE VALUE OF OUTDOOR SITTING ROOMS ON OUR COUNTRY ESTATES IS GENERALLY RECOGNIZED — MACRORIE-McLAREN COMPANY, LANDSCAPE ENGINEERS

FORMAL FLOWER GARDENS ARE ALWAYS POSSIBLE IN SMALL CITY LOTS
MACRORIE-McLAREN COMPANY LANDSCAPE ENGINEERS

IN SMALL BACK GARDENS FORMAL TREATMENT IS MOST EFFECTIVE
MACRORIE-McLAREN COMPANY LANDSCAPE ENGINEERS

SEMI-FORMAL HILLSIDE TREATMENT ON THE ESTATE OF MR. GEORGE LENT
MACRORIE-McLAREN COMPANY LANDSCAPE ENGINEERS

BENNETT APARTMENT HOUSE, STOCKTON
Ralph P. Morrell, Architect

Interlocking Hollow Tile Walls Prove Effective Fire Barrier

THE fire-resistive qualities of hollow tile were demonstrated in a very convincing manner at Stockton, Cal., recently, when the interior of a three-story apartment house was gutted by fire, while the exterior walls, built of interlocking tile, remained intact; in fact, the stucco with which the walls were covered was not even cracked. The photographs show the building before and after the fire. Architect Ralph P. Morrell of Stockton planned the structure for the late Mr. W. H. Bennett, and it was supposed to represent the last word in apartment house design. The property was valued at $150,000.

From one end of the country to the other we read of America's tremendous fire losses, averaging the past two or three years as high as $5.25 per capita. Engineers who have studied the situation say there is but one real cure—build better buildings. Had the floors and partitions in the Bennett Apartments been composed of the same material as the exterior walls, there would have been a different story to tell. It is reasonable to assume that the damage to the building would have been nil. The flames would have been confined to the basement, where they originated. As it happened, the floors and joists were wood, and so was the lathing and interior trim. The exterior walls, then, constituted practically the only fireproof feature of the building. Had these walls been built of some other material, it is alarming to predict to what extent the fire would have raged. Probably the entire block would have been destroyed. To quote from an interview with the Stockton Building Inspector after the fire:

BENNETT APARTMENT HOUSE, STOCKTON
Showing condition of hollow tile walls after fire

BENNETT APARTMENT HOUSE, STOCKTON
Note splendid condition of hollow tile walls after exposure to flames

BENNETT APARTMENT HOUSE, STOCKTON
Roof and partitions destroyed. Hollow tile walls intact

"There was a dwelling within three feet of the Bennett Apartments, and the fact that the tile walls remained intact throughout undoubtedly permitted the saving of the dwelling, with no damage whatsoever. The entire outer shell of the building as it stands today can be used in rebuilding.

"The Bennett Apartment house was a three-story building, the exterior walls of which were 12 inches thick for the first two stories and 8 inches thick for the third story and built of Denison interlocking terra-cotta tile. The damage by fire was greatest on the third story. The roof was entirely destroyed. With the exception of slight smoke damage on the northwest wall and the broken glass of the windows, there was no damage whatever to the outside walls. A very careful inspection was made of the inside of the walls where the trim had burned away, and especially above the third floor ceiling, where the tile was exposed to the direct action of both fire and water, and there was no sign of failure of any kind in the tile walls."

* * * *

Area Covered by 1000 Shingles

This table shows the number of square feet 1000 shingles will cover:

Laid	Area Covered	No. to a Square
4 inches to weather	100 sq ft.	1,000
4¼ inches to weather	100 sq. ft.	910
4½ inches to weather	120 sq. ft.	833
4¼ inches to weather	133 sq. ft.	752

On hips and dormers or for four valleys add five per cent for cutting; on irregular roofs with dormers add ten per cent. An average shingler should lay 1300 shingles in eight hours, on irregular roofs 900. Five pounds 3d. nails to 1000 shingles.

THE
Architect and Engineer
Incorporated
Founded 1905 by E. M. C. WHITNEY
W. J. L. Kierulff - President and Manager
Fred'k W. Jones - Vice-Pres. and Editor
L. B. Penhorwood - - - - Secretary
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Published Monthly in the Interest of the Architects, Structural Engineers, Contractors and the Allied Trades of the Pacific Coast by The Architect and Engineer, Inc.

PUBLICATION OFFICE:
627-629 Foxcroft Building, San Francisco
Telephone Douglas 1828

The publishers disclaim any responsibility for statements made in the advertisements of this magazine.

Terms of Subscription
(Including postage) to all parts of the United States, $2.50 per annum; to Canada 75c additional; to all Foreign points $1 additional

Vol. LXXII. MARCH, 1923 No. 3

ARCHITECTURE ALWAYS REFLECTS

Architecture may be glorious or deadly dull, but architecture always reflects, not only the minds of those creating it, but the minds and development of the community in which it is created. A young and vigorous community will give a strong, vigorous architecture, working ever into a more satisfying art as the community progresses in education and appreciation of the finer arts; if the community shall have passed through the finer things of life into frivolity and decadence, so will its architecture become characterless, over-decorative and exhibit all the idiosyncrasies of decadent thought.

Contemporary American architecture is the finest that is coming into existence. The lessons learned by our architects from the Old World teachers are being sanely and soundly applied to our buildings, even as the current Old World architecture seems to have passed into an utter forgetfulness of all that has gone before.

This is shown in the recent work of Los Angeles architects illustrated somewhat sparsely in this number of the Architect and Engineer, but shown in detail in the 1922 Year Book of the Southern California Chapter and Los Angeles Architectural Club.

Southern California already occupies a conspicuous place in American building. Does its architecture qualify it to hold as distinguished a position in the art of architecture? Is the architecture that is being developed in the community a good architecture? Is it alive? Is it strong? Has it character? Distinction? Is it leading toward or receding from those precepts of architecture which have come down through centuries of human thought and have become basic because every age has found them satisfying?

If the answer be favorable—and the work that is shown would seem to point in that direction—then these men can proceed with confidence.

NEED OF MORE ARCHITECTURAL PHOTOGRAPHERS

During recent years architectural exhibitions have clearly shown the value of the artistically made photograph as a means of exhibiting works of architecture. Here and there throughout the country are to be found men of considerable artistic ability who have taken up photography and dignified it to a point of art. These men, born with correct ideas of good composition, and with a correctly developed appreciation for good art, lack only the power to co-ordinate the hand with the eye to become artists. They find in the camera a means of expressing the artistic

yearnings which beset them. Their work is entitled to the respect of every one who desires to encourage good craftsmanship. It is essential that the craftsmanship of architectural photography should become more highly developed, and it is the architect who can, to a great extent, promote that development.

In a recent trip covering many large cities of the West, a writer for the American Architect says he found that while there was a wealth of material, ready and ripe for illustration, unfortunately there were no local photographers who were sufficiently artistically trained to photograph it. This lack of photographer craftsmen deterred many architectural clubs from holding exhibitions, or contributing as group exhibitors to the larger architectural exhibitions East and West.

Many a man today unsuccessfully practising architecture, and from one cause or another unable to gain a livelihood, would, by reason of his architectural training, plus a knowledge of modern methods of photography, find a very dignified and lucrative calling as an architectural photographer. The field is large, for we know by actual experience that the competent architectural photographers in this country can be counted on the fingers of two hands.

ITALIAN RECOGNITION OF OUR CALIFORNIA ARCHITECTURE

The reputation of California architects for distinguished work has not only reached the Eastern cities but has extended across the waters, as evidenced by the recent publication in Architecture and Decorative Art, published in Italy, of many half-tone plates showing some of the recent work of Architects George Washington Smith, Willis Polk, Myron Hunt, and Reginald D. Johnson. A very flattering article accompanies the pictures, and the following paragraphs, translated from Italian, indicate the editor's high regard for our California architects and their work:

"Look at that villa built by Architect Myron Hunt in Santa Barbara and you will find yourself in Colli Laziali. The small church built by Thomas MacLaren in Colorado and the villa of Howard Shaw make you think of Toscani. Also the very plain, small house by George Washington Smith makes you think of the rustic Abruzzo. The villa erected by Reginald D. Johnson in Montecito has certainly been taken after a dream of a stay (summer vacation) in Capri. Those of Willis Polk in Saratoga and Edward C. Dean in New York recall the divine sweetness of an enchanted island.

"Also very often in the interior arrangement of these California homes you will find the passion for Italian art. Observe now the plan of the villa in San Francisco by Willis Polk, with the closed court between two porches and the steps between two walls. Observe the villa of James Deering in Miami, with a large court of honor, portico, and Italian lodges.

Another example of an exclusively American plan is the villa Ryerson (Lake Forest, Illinois), where is impressed the sweet nude Italian harmony. Following the interior, you will find this same character and the same inspirations. Bare walls roughly cemented, resting on projected pillars in grey stone, flat ceilings with wooden beams, tapestry hanging on the walls, Venetian lanterns in gilded wood, Boulognesi tables and hammered iron ornaments in Siena.

"In one word, we have a great victory of our antique beauty, recognition by the young American race of our customs and prejudices of centuries ago. Victory which would make us proud if it did not reflect with sadness.

"Italian art. America copies the Italian architecture and gives credit, then goes way ahead of us by applying it to modern homes!

"This sorrow, after all, is today beginning to be realized because now we are commencing to esteem the beautiful manifestations of our ruralistic art, which, heretofore, we have suppressed with prejudice.

HOUSE NUMBER

The annual House Number of The Architect and Engineer will appear next month, showing a wide range of domestic architecture from the large country and city home to the small cottage and bungalow. Interesting plans will accompany many of the plate illustrations.

With the Architects

Building Reports and Personal Mention of Interest to the Profession

Los Angeles Chapter Committees

Dr. William A. Bryan, Curator of the Museum of History, Art and Science at Exposition Park, was the principal speaker at the February meeting of Southern California Chapter of the American Institute of Architects.

President Sumner P. Hunt has appointed standing committees for the ensuing year as follows:

Institute and Chapter Affairs Committee. Edwin Bergstrom, chairman; Robert H. Orr, secretary; John P. Krempel, J. T. Zeller, Wm. Richards.

Ethics and Practice Committee.—A. M. Edelman, chairman; Harwood Hewitt, secretary; J. E. Allison, Reginald Johnson, H. M. Patterson.

Education and Publicity Committee.—David J. Witmer, chairman; Fitch Haskell, secretary; D. C. Allison, Myron Hunt, W. M. Clarke.

Membership Committee.—Chas. F. Plummer, chairman; Wm. F. Staunton, Jr., secretary; T. Beverly Keim, Jr., Frank D. Hudson, H. C. Chambers.

Public Service Committee.—Alfred W. Rea, chairman; Henry F. Withey, secretary; J. J. Backus, Walter Webber, O. W. Morgan.

Affiliated Societies and Allied Arts Committee. — C. E. Noerenberg, chairman; John R. Kibbey, secretary; Lloyd Rally, F. Pierpont Davis, Sumner M. Spaulding.

Special Committee.—To revise city ordinances for school house construction—J. J. Backus, chairman; Edgar H. Cline, secretary; S. R. Burns, J. E. Allison.

City Planning Committee.—Henry F. Withey, chairman; A. C. Martin, C. H. Cheney, C. E. Noerenberg.

Certificates to Practice

Certificates for the practice of architecture have been awarded to the following: W. Wellington Smith, 245 E. 12th street, Long Beach; John J. Roth, Atascadero; William F. Durr, 128 W. 6th street, San Pedro; Samuel B. Birds, 420 Title Insurance building, Los Angeles; Robert D. Murray, 330 N. Ellis avenue, Eagle Rock; Rudolph Meier, 310 N. New Hampshire avenue, Los Angeles; Harry Newton Thornton, 315-16 Hill building, Santa Ana; William Mellema, 1442 Scott avenue, Los Angeles.

Los Angeles Apartment House

Plans are being prepared by Architects Walker & Eisen, Los Angeles, for a thirteen-story Class A apartment house to be erected on Wilshire Boulevard, Los Angeles, for Mr. Chas. Morris at a cost of $1,500,000.

The same architects have an eight-story apartment house for Mr. E. Clark Comer to be built on Hollywood Boulevard at an estimated cost of $500,000.

Brick Apartment House

Architect William F. Gunnison, 57 Post street, San Francisco, has completed plans for a three-story brick apartment house to be erected at Third avenue and Cabrillo street, San Francisco, at a cost of $55,000. Plans have also been drawn for a ten-story steel frame apartment house on the east side of Hyde street, south of Lombard, San Francisco, for Miss Marie Hinson. The bids on this building ran so high that construction may be deferred for a while.

Merced Hotel

Plans have been prepared by Architect W. J. Wythe, Oakland, for a three-story frame and brick veneer hotel at Merced for Shafer Bros. There will be ninety-nine rooms. The building will cost $90,000.

The same architect is preparing plans for a hollow tile church to be built at Market and Noe streets, San Francisco, for the Trinity Methodist Episcopal Church at an estimated cost of $60,000.

1922 Los Angeles Year Book

Copies of the 1922 Year Book of Architecture and Allied Arts of the Southern California Chapter, American Institute of Architects, and the Los Angeles Architectural Club, may be obtained from Mr. Edwin Bergstrom, Citizens National Bank building, Los Angeles, or from M. J. Hetherington, 46 Kearny street, San Francisco. Only a limited number of copies of the Book are available at $5.00 each.

Much Residence Work

New work in the office of Architect Earl B. Bertz, 168 Sutter street, San Francisco, includes a $30,000 residence at Seacliff for Mr. A. Freed; a $10,000 redwood bungalow at Belvedere for Mr. E. R. Rice; ten houses in St. Francis Wood for the Mason-McDuffie Company and twenty houses in Seacliff to cost $15,000 each for Allen & Company.

Manufacturing Plant

The Doble Steam Motors Company of San Francisco, which was to have built a new plant at Atascadero has changed its plans and will erect a factory in Emeryville, Alameda County. The Lindgren Company will be in charge of construction.

State Architect Complains

Scoring the California State Legislature for making inadequate appropriations for state building projects and thereby encouraging the erection of cheap frame buildings where inmates would be trapped in event of a serious fire, Mr. Geo. B. McDougall, head of the State Department of Architecture, urges in his biennial report to Governor Richardson that the state provide safe housing for patients and employees of state institutions.

Mr. McDougall says construction of cheap buildings is false economy. He warned of fire hazards now existent in state hospitals.

"Fires are occurring more or less frequently in state structures and if the policy of using frame construction for permanent buildings is not abandoned there is great danger of a rude awakening to the error of such policy through a conflagration causing the loss of property and lives," says Mr. McDougall.

"The first cost of fire-resisting buildings is only from 20 to 25 per cent greater than of the cheaper type, while their lives are easily double those of wood frame structure," Mr. McDougall concludes.

Officials Resign

Reduced salaries and operating expenses in most of the California state bureaus and departments under the economy program of Governor Richardson, are having a telling effect in the Division of Architecture of the State Department of Public Works.

Several employes of the office have already resigned to accept better paying positions under private employers, and others are planning to leave the state service in a short time.

Among those who have left of their own volition are:

George J. Adams, deputy chief of the division; F. A. Beak, mechanical engineer; W. H. Epperson, refrigerator engineer, and J. F. Irwin, mechanical engineer; A. H. Memmler, assistant to the chief of the division; C. K. Aldrich, chief estimator; L. F. Sherwood, chief draughtsman; L. B. Miller, chief designer, and A. M. McSweeney, architectural draughtsman.

To Build Power Plant

Plans are being prepared by Architects Binder & Curtis of San Jose for a reinforced concrete power plant at the County Hospital, San Jose.

The same architects are completing plans and will call for bids in April for a ten-story brick and terra cotta store, office and club building for the Commercial Club of that city.

They Read The Architect and Engineer

That architects read The Architect and Engineer, not only in their offices but at their homes, is evidenced from the following letter written by Mr. Alfred Hopkins, architect, 101 Park avenue, New York, under date of March 1st, 1923. It will be noticed that Mr. Hopkins wants all future copies of The Architect and Engineer sent to his home instead of to his office, which would indicate that he wishes to digest the contents of the book more thoroughly in his leisure hours. The letter follows:

I did something last night which I have not done for a long time, that is, I read a monthly periodical on architecture. It was yours. In it, Mr. F. W. Fitzpatrick refers to "a pertinent letter, from a big business man in Chicago, anent "Salesmanship in Architecture," published in The Architect and Engineer of November, 1922.

I do not know whether I received the November issue or not. At any rate I cannot find it and I would be greatly obliged to you if you would send me an extra copy to my home address, 123 East 53rd street, New York City. In fact, will you change my address on your mailing list so that I may receive all future numbers of The Architect and Engineer at my home address and not at my office as heretofore.

How To Know Architecture

The United States Commissioner of Education, Mr. John J. Tigert, offers a new course for home reading on "How to Know Architecture." This course is offered to those who are interested in the art of architecture. The books in this list have been selected by Mr. Richard F. Bach, Associate Director of the Metropolitan Museum of Art of New York City and the list contains titles of readable books on the history, evolution and development of architecture and on the enjoyment of architecture and some practical works on architecture.

This is one of the twenty-three courses for reading issued by the United States Bureau of Education in carrying out its plan of home education. Those who are interested in these courses should write for information to the Commissioner of Education, Washington, D. C.

Chinese Hospital

Architects O'Brien Bros., San Francisco, have completed plans for a four-story reinforced concrete hospital to be built in Trenton Place, near Jackson street, San Francisco, for the Chinese Six Company at an estimated cost of $60,000.

The same architects are preparing plans for a large two-story concrete warehouse for C. E. Phillips & Company, estimated to cost $85,000. The location is on the southeast corner of Gilbert and Brannan streets, San Francisco.

Landscape Gardening

Mr. Emerson Knight, landscape architect and engineer, 704 Market street, San Francisco, is preparing plans for the garden of Mr. L. C. Koster, in Sausalito.

American Sculpture Exhibit

The National Sculpture Society of New York will hold an indoor and outdoor Exhibition of American Sculpture this spring in the galleries and on the terraces and grounds of the Museums located at 156th Street and Broadway The Exhibition will include the works of the most distinguished contemporary American sculptors. About two hundred artists have had their work accepted by the jury. The works which number about eight hundred range from large monuments to small sculpture and medals. Elaborate landscape decorations are being planned which will give a most artistic setting as a background for the sculpture shown out of doors.

A Catalogue containing two hundred illustrations and complete biographical data is being issued. A small volume with illustrations, entitled "The Spirit of American Sculpture," has been written for this Exhibition by Mrs. Herbert Adams. On April 14th the Exhibition will be opened free to the public, and will remain open until August 1st.

Has Much School Work

Architect Louis N. Crawford of Santa Maria has $180,000 worth of school work near completion and has sketches out for a $25,000 grammar school for the Los Olivos School District and an $80,000 grade school for Santa Maria.

The same architect has prepared working drawings for a store and small theater building for Mr. C. E. Mosher of Arroyo Grande, and is designing the following other structures: Masonic Hall and store building, Arroyo Grande; K. of P. Hall, Santa Maria; undertaking parlors for A. A. Dudley, Santa Maria; and residences for Messrs. C. L. Preisker and L. D. Waller in Santa Maria.

Elected President

Mr. J. W. Fricke of the C. F. Weber Company, San Francisco, was recently elected to the presidency of the National School Supply Association at the sixth annual convention in Chicago. In accepting the position Mr. Fricke drew attention to the fact that the Association had made more progress in five years than the average Association with a similar mission had made in fifteen years and this splendid record he attributed largely to the good fellowship and unity of the members.

Sacramento Hospital

Plans have been completed by Architect R. A. Herold of Sacramento, for a $500,000 hospital in East Sacramento. The building will be of reinforced concrete and five stories in height.

Elected President

Mr. Francis H. Gentry, of the firm of Parker O. Wright and Francis H. Gentry, architects and engineers, of Los Angeles and Long Beach, has been elected president for 1923 of the Long Beach Chapter of the American Association of Engineers. Before moving to Long Beach Mr. Gentry maintained an office in Los Angeles for many years. Other chapter officers elected were: Charles P. Hale, first vice-president; Erskine E. Mix, second vice-president; Edward H. Ogier, secretary; Elmer E. Frey, treasurer; and Arthur H. Adams, James F. Collins and Ward S. Smith, directors.

Exposition of Building Ideas

One of the largest expositions of building ideas ever staged in this country is being planned as a feature to the sixteenth annual convention of the National Association of Real Estate Boards, to be held in Cleveland June 25th to 30th.

The Cleveland Real Estate Board, hosts to the national convention for 1923, has approved and completed the final plans for the national exposition of building ideas.

All classes of building material used in the construction of both domestic and commercial buildings will be on display, each exhibit having a constructive and educational value which, it is aimed, will make this exposition unique.

Steel Bids Taken

On account of the scarcity of structural steel and inability of Pacific Coast firms to fill contracts of any considerable size except where extra time is given for deliveries the Pacific Gas & Electric Company has secured a tonnage price on the structural steel for its new building in advance of the date set for taking bids. About 2800 tons of steel will be required on the company's new seventeen-story store and office building at Market and Beale streets, San Francisco.

Athletic Club Building

Architect Edwin Bergstrom, Los Angeles, is preparing plans for a spacious club building for the Southern California Athletic and Country Club to be built on the Club's property on Wilshire Boulevard, Los Angeles. It is estimated the improvement will cost $2,000,000.

Architect Donovan In the East

Architect John J. Donovan of Oakland, is taking an extensive trip through the East and is not expected to return for another month. He has attended several conventions, including that of the National Educational Society.

Personal

Architect B. E. Remmel, who designed the new plant of the Star Motor Company of California, recently completed at San Leandro, has reopened offices for the practice of architecture at 733 Grand avenue, Oakland. For the past three years Mr. Remmel has been associated with the P. J. Walker Company.

* * *

Mr. Charles H. Kyson has been appointed architect in charge of the development of designs and structures for the grounds of the coming American Historical Review and Motion Picture Exposition which is to open in Los Angeles in July. Mr. Kyson is also president of the Motion Picture Art Directors' Association.

* * *

Mr. Austin B. Fletcher, former California state highway engineer and director of the Department of Public Works of California, has been appointed chief engineer of the Commission formed by six New England states to work out a comprehensive plan for transportation within their boundaries. The governors of the six states and presidents of all the important railroads in the territory are members of the commission. The proposed transportation plan will include both highways and railroads, the idea being to make highways feeders rather than competitors of the railroads.

* * *

Dr. William Hubert Burr of New York, former member of the Isthmian canal commission, and Prof. C. Derleth, of the University of California, Berkeley, have been appointed associated engineers on the Carquinez Straits bridge, for which the Rodeo-Vallejo Ferry Company of San Francisco has secured a franchise.

* * *

Architect Mott M. Marston has moved his offices from the San Fernando Building to 1400 Stock Exchange Building, Los Angeles.

* * *

Messrs. Frank R. Farrar and J. T. Payne have formed a partnership with offices at 426 Western Mutual Life Building, Third and Hill streets, Los Angeles.

* * *

Mr. M. L. Barker, formerly associated with Architect Harwood Hewitt, has opened offices in the Bogardus building, 1505 N. Western Ave., Los Angeles.

* * *

Messrs. Floyd A. Naramore and A. Frederick Menke, A.I.A., have formed a partnership for the practice of architecture under the designation of Naramore & Menke. Offices will be maintained at 631 Central building, Seattle.

* * *

The architectural and engineering firm of Schack, Young & Myers, formerly in the Lippy building, Seattle, has moved its offices to suite 633-34-35 Central building.

Spokane Architects Meet

President W. B. Faville, of the American Institute of Architects, was the guest of some twenty-five architects and of the Associated Engineers at a dinner at the Davenport Hotel, Spokane, recently. He was the principal speaker at the dinner, at which Mr. George Keith, vice-president of the Chapter, presided, and others who talked were Messrs. Albert Held, Julius Zittel, Harold Whitehouse, and John Ralston.

At the opening of the meeting Mr. Keith called attention to the gavel he was wielding, which is made of wood that has been pronounced by scientists of Gonzaga University and of the National Smithsonian Institution to be 150,000 years old. It was made from a stump, partly petrified, which was discovered embedded in a flow of lava at the time of the blasting of North Division street.

Goes to Southern California

Mr. Harold O. Sexsmith, formerly faculty member of the Department of Architecture, University of Washington, has accepted an appointment on the teaching staff of the School of Architecture of the University of California, Southern branch, and in addition will have an opportunity to practice architecture. Before leaving Seattle Mr. Sexsmith was given a luncheon at the College Club by his professional associates.

Architects Move

The following architects have recently changed their office addresses: Arthur G. Lindley, 800 American Bank building, Los Angeles; R. Vane Woods, C. E., 505-17th street, Oakland; Bernard W. H. Scott, 833 Ashbury street, San Francisco; Carl R. Schmidts, 2524 Milvia street, Berkeley; Ware & Winburn, 610 Utah Savings & Trust building, Salt Lake.

Fifteen Story Fresno Building

The R. F. Felchin Company of Fresno are preparing plans for a fifteen-story Class A bank and office building to be erected at Mariposa and J. streets, Fresno, for the Fidelity Branch, Pacific Southwest Trust and Savings Bank. The building will cost $1,000,000.

Christian Science Church

Plans have been completed by Architect Glenn Allen of Stockton, for a $100,000 Christian Science Church. The edifice will be constructed of brick and will seat 300 persons.

Addition To School

Architect Louis S. Stone of Oakland and Stockton, has completed plans for a one-story brick addition to the Healdsburg Grammar School to cost $60,000.

National Fibreform Company Gives Fire Test

By M. H. BAKER

UNUSUAL interest was shown in the recent public fire demonstration given by the National Fibreform Company of San Francisco. A small house was constructed of wood frame, then finished inside and outside with Granitite Walls. A roaring fire was kept burning inside the house for a hour and twenty minutes with a maximum temperature of 1920 degrees Fahr.

After the fire a close inspection was made by the city fire officials and the exterior walls were found completely intact and in no way harmed by the fire. Examination of the interior showed the wood frame had been so thoroughly protected as not to show even discoloration from the intense heat.

Another remarkable thing was the fact that the temperature on the exterior walls did not exceed 80 degrees Fahr. This demonstrated that the walls were highly insulated against radiation of heat.

A comparative test was made simultaneous and in the same way with a house constructed of standard stucco and plastered walls. The stucco house was on fire in thirty minutes time and at the end of an hour and twenty minutes the structure had completely collapsed.

The test was made under the supervision of Chemical Engineer Robert W. Hunt. Pyrometer readings were kept and these records are available to any one interested.

The following is a brief description of the product and company behind it:

Granitite Walls are constructed by using a combination of three products, fibrelite, granitite and sealkote.

The fibrelite is an improved form of insulation which is nailed direct to the studding instead of sheating and laths. This product gets its highly insulated qualities from the large amount of dead air incased with the fibre formation. The fibrelite panels are coated with granitite which is a cement compound. The granitite is applied in a mortar stage and permits a white trowel finish for the inside walls, and the stucco style finish for outside walls.

This cement compound has powerful strength and gets its remarkable fire resistance from the fact that the material has very little expansion or contraction. Exterior walls are finished with ⅜ths of an inch coat granitite over the fibrelite. Interior walls are sufficiently strong with ¼th inch coat of granitite. The test house was constructed under these specifications.

The Fibreform laboratories have also developed a waterproofing which is used on the exterior Granitite Walls. The waterproofing, Sealkote, is a colorless liquid of mineral base, which penetrates the wall surface and permanently seals the outside against moisture.

The National Fibreform Company's plant at 16th and Arkansas Streets was recently finished and production has been under way for some time. One of the buildings at the California Sanitarium has just been finished with Granitite Walls and several other jobs are in course of construction, including a large building project at San Diego.

The company is being financed by a group of San Francisco business men among whom are Messrs. R. W. Salsbury, Cyril Tobin, Dr. Max Rothchilds, J. F. Judge, W. P. Scott, Charles W. Clark, George Clough and Harry Hunt.

Proper Insulation

The best time to save fuel is when you build your house, not when a fuel shortage developes or the mercury hovers around zero, according to Mr. H. J. Burt, structural engineer with Holabird & Roche, architects. And the way to save fuel is to see that your house is properly insulated.

"For each pound of fuel consumed in heating a house there is produced a definite number of heat units," says Mr. Burt. "These ultimately escape to the outer air. The longer these heat units can be retained within the building the smaller the amount of fuel that will be required to make up their continual loss.

"Heat is lost up the chimney and around the doors and windows. These escapements give a natural ventilation, but the loss of heat by transmission through the walls and roof is wasteful and should be corrected by the application of an effective insulating material.

"Heat finds its way through the walls whenever there is a difference in the temperature of the inside and outside air. The loss of heat is directly proportionate to this temperature difference. The rate of loss depends on the wall construction.

"For example, an eight-room house may have approximately 3,000 square feet of wall surface. The average difference in temperature in the northern half of the United States is approximately forty degrees in the winter. The amount of coal required to supply the heat loss for the above case is eleven tons. By moderate insulation of these walls one-fourth of this loss can be prevented, and by thorough insulation the saving increases to one-third or one-half.

"Roofs are even more extravagant than walls in the loss of heat. The ordinary shingle roof will transmit 50 per cent more heat than the ordinary side wall."

The Hoover Dwelling House Code

IN his letter of acceptance of the report of the Building Code Committee of the U. S. Department of Commerce, Secretary Hoover well expressed the objects aimed at in the preparation of "Recommended Minimum Requirements for Small Dwelling Construction." He says: "I am confident that the generous and voluntary contribution of time and energy which you and your colleagues have given to this work will result not only in a very appreciable money saving to millions of American families, but that it will have a positive influence toward better housing that cannot be counted in dollars.

"I join with you in the belief that it will be helpful not only through practical use by municipalities in building codes, and in promoting greater uniformity in codes throughout the country, but that with its appendix it will prove directly useful to owners and builders of dwellings generally."

The methods and practices now in use in the design and construction of dwelling houses are the result of blindly following tradition and past custom. There seems to be no other reason for the thickness of masonry walls used for ordinary one-and two-story dwellings than a survival of the belief that such walls should act to a large extent as parts of a fort.

Engineers and architects have doubtless previously made the simple computations necessary to show that the actual loads coming upon the walls of the ordinary one-or two-story house are ridiculously small and are, in fact, only a small percentage of the working loads which engineers long have used in the design of large and important bridges and buildings.

An understanding was soon gained by Mr. Hoover of the woeful lack of definite provisions in the majority of building codes throughout the United States in regard to the minimum requirements for dwelling house construction. In conformity with his general plan of reducing all the lost motion possible, he conceived the idea of having prepared a standard practice based not on inherited practices but on the real need for strength in small buildings.

The recommended minimum requirements for small dwelling construction which resulted from the appointment of a building code committee removes many of the unnecessary limitations which the common practice in house construction seemed to require and for which the home owner has to pay. Instead of 12 inch brick walls for two-story buildings a thickness of 8 inches is permitted.

Recognition is also given to types of construction other than those so well known. The use of concrete, both plain and reinforced, is provided for in the code, and recognition of the strong monolithic character of this structural material is given by allowing exterior walls to be six inches thick. The thickness of walls of hollow building tile and hollow concrete block is also placed more clearly on a basis of the actual strength of these walls than on arbitrary requirements. Walls of hollow building tile or hollow concrete block eight inches thick are allowed for the uppermost 20 feet of buildings limited to 30 feet high.

The use of reinforced concrete is placed on the same general basis as large buildings and bridges, examples of which have become so numerous and well known. Dwellings of this type may be designed in accordance with the well-recognized principles of reinforced concrete design to withstand the loads to which they will be subjected. However, certain requirements are provided which are based more on the practical work of getting the concrete into the forms. Double walls of concrete providing an insulation air space may be constructed with 6-inch agregate thickness of concrete cast in place. The use of large precast units, each of which may be story height and form an entire one-story wall of one side of the house is permitted. Concrete houses provided with a reinforced concrete framework similar to that used in large buildings, but with enclosing and partition walls of concrete plastered on metal lath, are permitted in this code. In fact, new methods of construction which give great promise of developing fire-safe types and low costs are provided for in the code.

The minimum provisions of this code are safe. They are the result of careful work by a committee which has no other interest than to serve the public to the best of its ability. This committee had at its disposal the most complete compilation of information that has ever been assembled by any committee working on the subject of house construction. Adoption of the code or at least incorporation of the important major parts of its provisions into city building regulations is the next step to make this valuable work of Mr. Hoover's building code committee the means of reducing the cost of dwellings, without any sacrifice of required strength or fire-safeness. In fact, the opportunity which it gives for invention and the exercise of engineering and architectural skill will insure that these objects will in the end be attained for less cost than at present.

With the Engineers

The Engineer and the Architect

By DR. WARREN P. LAIRD

Dean of the School of Fine Arts, University of Pennsylvania

POSSIBLY in the past 40 years the engineering profession has undergone a greater development than in any previous period of its existence. We who are not engineers look upon the development of that profession as a very remarkable thing. It has kept pace with, and is largely accountable for, the great growth of industrial activities. That would have been impossible save for the engineers. And along with the industrial activity of the country, wealth-producing activity generally has grown, and has grown immensely, needing the great constructions which the engineers have created and developed.

I am not able to give a definition of the engineer. Nor, perhaps, should I attempt to, of the architect. A profession which is so complex and makes so many demands upon training and intelligence and experience and judgment as do those of engineering and of architecture, is a profession that is very hard to compress into a definition.

However, I would like to say a word to you of the architect's point of view: of what the architect at his best tries to stand. I want to do that because I believe between the architect at his best and the engineer at his best there is the possibility of a full reciprocal relation. I believe that the one does not at all render the other unnecessary, but, where each is performing its function in the best way possible, they are both necessary in the life of this country and its advance in civilization.

The architect is a man who produces buildings, and these are works of utility, almost invariably. He would not exist if he had to do only those very few works which are small and monumental and mere expressions of sentiment. The architect almost invariably has to deal with a work of utility, as does the engineer. The architect, however, is expected to bring to that work of utility an element with which the engineer does not charge his mind and for which the world generally does not hold him responsible. That we may define as the element of beauty.

The implication is that if the architect is concerned with beauty he cannot well be a very practical person; and that the work of utility must look to some other talent than his if it is to become useful and enduring. The impression frequently obtains that the architect is a dreamer of dreams, a maker of pictures, a conserver of beauty, and a general nuisance to the practical man. The conception is wrong. I do not state it before you in an accusing way. It is not your view, but it is a view sometimes held of the architect where he is not thought of very carefully.

In the schools we teach our students fundamentals, and it is one of the major fundamentals that architecture, to be successful, observes three great laws: It observes, first of all, stability—the building must be well built to be good architecture. It must be economically built. There must be conservation of material or cost or it is not good architecture.

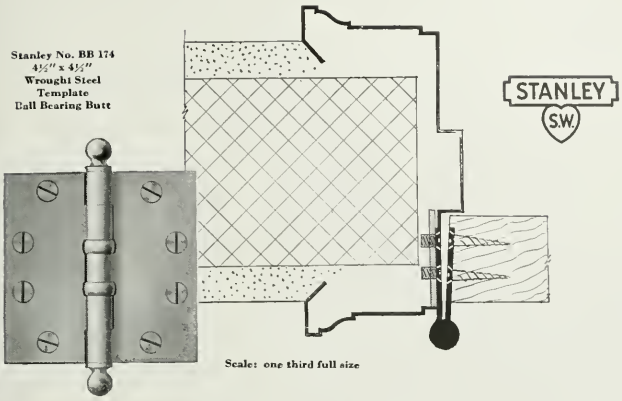
In the second place, it must be convenient—must adapt itself to its purpose, and perhaps the central thought of the architect, in his preliminary studies, is to produce a good plan, a good arrangement of parts.

And the third element, which goes without saying, as Hamlet does in the play, is that of beauty.

We try to bring to the consciousness of the student that conception of architecture. If he has it, if he is trained under it, if he remains true to it, he becomes a good constructor, he becomes a good planner, and he is able to give to his buildings the semblance of beauty, to give to them good proportion and color; good lines, good detail, and a true expression of their purpose; in short, a spiritual quality.

That program for architecture means that the architect must be a pretty broad man; that he must have a good mind; that he must be educated in the laws of construction; that he must have a good training in the theory and practice of composition or design; that he must have his taste and his creative instinct developed under discipline. All this we try to do, and it is attempted in all the good architectural schools of the country. It is the endeavor to train him in those three laws and to bring him finally to a state where he will be able to master the problems of architectural practice.

Another thing that we teach him is that he is not the master of everything with which he comes in contact. He cannot expect of himself, and the world does



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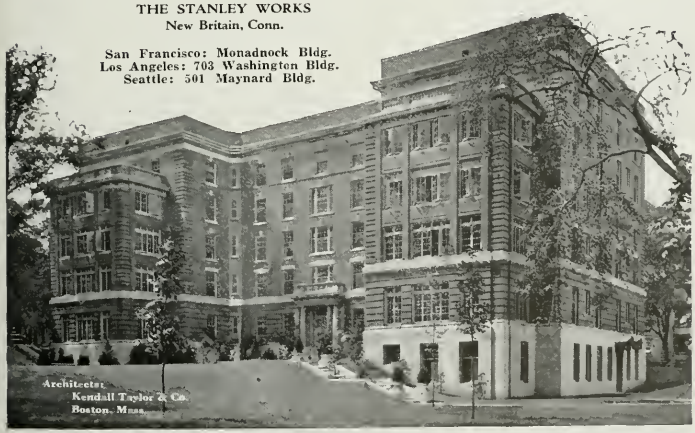

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not expect of him, to be able to handle complicated or unusual problems that lie in the field of the engineer, and therefore he must have in service upon the building that he is designing that expert knowledge which can be found only among the engineers in the field of steel construction. of sanitation, of illumination. and so on.

The architect ought to be able—and he is an incomplete architect if he is not able—to solve all ordinary structural problems, but the exceptional problem frankly goes beyond him.

What is this factor that differentiates the architect from the engineer? It did not exist at one time. When those buildings were constructed that we regard as the world's masterpieces of architecture, they were constructed under a single intelligence—the great cathedrals, the monuments of the past, such as the Parthenon, of which Emerson, I think, said, "Earth proudly bears the Parthenon as the best gem upon her zone." We all admit that the Parthenon is man's masterpiece in architecture.

We separate our day from the day which produced those things. They were governed by a single intelligence which controlled construction and design, and produced masterpieces. In these modern times and for some hundreds of years past, the architect and the engineer have been taking divergent paths; and today the engineer does a vast number of things which the architect could not pretend to do, and the architect does not pretend to do.

But why is it not possible for these two intelligences to function together? I believe it is. It only needs for each to come to a better understanding of the other.

The engineer, I think you will let me say, dismisses from his mind, as being outside of his field, any concern for beauty. When he has designed a bridge or any other work, he has put into that design all the material that the use of the structure will require and not an ounce more, because that, being superfluous, is waste. He has covered every factor of safety, but he will not waste any material, and he will perhaps regard that thing which produces the element of beauty as being excess of necessary material. That, however, is not quite the way to look at it.

The architect does not produce his effects through wastefulness, through excess, through prodigality or improvidence, but he is aiming to produce something that will satisfy not alone scientific judgment, that will not simply bear strains and endure the asperities of time and weather, but he is trying to satisfy something that lies beyond that scientific judgment and that exists in the mind and heart of man—a love of the beautiful. He is trying to give something to the observer which will satisfy the intelligence in the first place and which will go beyond that and satisfy the craving for beauty.

Among the few things that we architects believe and teach is this proposition, that beauty is not to be had at mere money cost; that it is not always, and perhaps not often, necessary to go beyond the economic requirements of a building to make it beautiful. On the contrary, making a building beautiful is a question of good taste and good judgment in the employment of material; shown in the selection of materials that will harmonize in color; that have good texture and will please the eye by their surface character and by the selection of ornament that will be appropriate and well placed.

Under the severities of his training, the architect comes to learn that the process of making a thing beautiful is the process of simplifying it. I wish I could show you the process through which the student passes, in which we harrow his soul by requiring him to leave things out, whereas his instinct is to put things in to make his building beautiful. Ordinarily the simplest things are the most beautiful.

Sometimes there is a deliberate effort to make a thing sumptuous and rich and gay, but that is an essay in a certain kind of design. The result may not be satisfactory because it is a great deal more difficult to make a very extravagant thing beautiful than to give that quality to a simple thing.

The architect's great concern, then, in his work is design or composition; that is to say, the arrangement of the parts into a whole. In designing his plan, he has in mind not merely the distribution of spaces into a convenient arrangement, or the nature of the structure which is to support the roofs and to separate those spaces, but also of something that he must carry along at the same time; he has in mind always the producing of something which will develop into a form of beauty. It is one of the commonplaces in architecture, in the judgment of designs in architectural competitions—I think that is not commonly realized—that the jury will attach greater weight to plan than to elevation; and if there is a slight difference in merit between two plans, it would take an extraordinary badness in the elevation of the better of those designs, and an extraordinary beauty in the elevation of the second best design to give that second best plan the first place in the competition. The best architectural jury will

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look first at the plan, to see whether it is going to produce the utility that will meet the purpose and whether it is going to be economical in its construction or not. They feel a security in doing that because of the fact that a good plan will produce a good elevation in competent hands. Hence, the architect's major responsibility and the thing that occupies most of his time and study is the problem of providing something practical, something that will satisfy economic requirements, and he can best produce a work of beauty out of those conditions.

Preparing for Big Bridge

Mr. J. B. Leonard, civil engineer of San Francisco, is preparing to make soundings in San Francisco Bay preliminary to the construction of a toll bridge by Col. Frank Elbridge Webb, connecting Little Coyote Point in San Mateo county to Alvarado in Alameda county.

Work on the structure will begin within the next four months, and the bridge will be ready for traffic by September, 1925, Colonel Webb states.

The Keystone Construction Company of Philadelphia will be awarded the contract for building the bridge, according to Colonel Webb. Materials, as far as possible, will be purchased in California.

Bridge tolls, which will be considerably less than the present ferry rates, will be as follows:

Seven-passenger automobile	$ .50
(Driver included in all and 5 cents for each passenger.)	
Five-passenger automobiles	.50
Two-passenger automobiles	.40
Tri-cars	.30
Motor-cycles	.20
Ten-ton trucks	1.50
Six-ton trucks	1.25
Five-ton trucks	1.00
Four-ton trucks	.90
Three-ton trucks	.80
Two-ton trucks	.70
One-ton trucks	.60
Trailer	.50
(Truck tolls include driver.)	
Stages	1.00

Engineers Associate

Mr. Charles T. Phillips, consulting engineer of San Francisco, has now associated with him Mr. Fred B. McNally, a graduate mechanical engineer with fourteen years' experience as a heating and ventilating engineer, six years of which were spent as mechanical engineer for Architects Bliss & Faville.

Mr. Phillips has just completed plans for the electrical and mechanical equipment for several buildings for the Bank of Italy and a number of other buildings and states that, due to the large amount of work in his office, it is necessary to increase the size of his office force considerably.

Mr. Phillips has been in consulting

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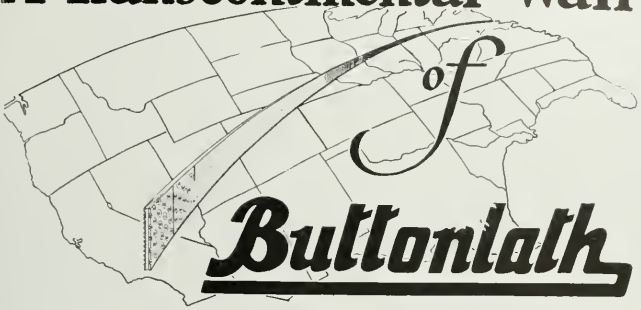

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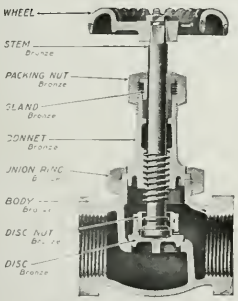

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practice in San Francisco for fifteen years, and in that time has been the electrical and heating engineer for over a thousand buildings, preparing the plans under the supervision of the architects.

"The Paint That Won't Come Off"

The U. S. Elaterite Products Co. of the Pacific, with offices in the American National Bank building, San Francisco, reports that the following article, which appeared in a recent issue of the Scientific American, brought over 800 inquiries:

"Tests of elaterite, otherwise known as elastic bitumen or mineral caoutchouc, refined and in liquid form, are disclosing this hydro-carbon, of which beds exist in eastern Utah, as an extremely useful agent in the world of industry, rendering services that nothing in nature heretofore was known to perform. As brought into commercial form, it is used on iron, steel, leather, rubber, cork, concrete and tin, the solvents evaporate, leaving an intensely close-grained, luminous ebony-black veneer which is completely poreless. This coating is over 85 per cent pure carbon, and is acid, alkali, water, electricity, oxygen and nitrogen-proof. It is serving with conspicuous efficiency as a coating for tanks and other containers for solution used in galvanizing, the recovery of gold and silver from low-grade ore, electroplating, pickle factories, and other industries wherein unprotected tank surfaces are found to decay rapidly through contact with their permanent contents.

"Experiments extending over the last four years have demonstrated that underground pipes of both wood and metal, when coated with elaterite solution, were not in the least affected by decomposing elements of the soil, complete preventing of rot and rust having been accomplished. In iron pipes and steel superstructures which were coated with elaterite solution electrolysis was completely frustrated. Telegraph and telephone poles and fence posts, the lower ends of which had been immersed in elaterite solution before burial in the ground, were found to have remained sound and their elaterite covering was entirely unaffected by acids and alkalies of the soil. In its utility as a coating for marine craft, where lead-and-oil paints have had but brief lives, elaterite proves itself a permanent agent and a conspicuously successful protection to hulls from the deteriorating influences of fresh and salt water.

"In the analysis of the secret of these unusual powers possessed by elaterite, it is found that the refining process eliminates 11.19 per cent hydrogen and .24 per cent sulphur contained in the characteristic crude product, after which contraction becomes so acute as to prohibit passage of water or air. The substance is itself impervious to water, oxygen, nitrogen and electricity, its chemical inertia being such that it is indestructible by any element in nature except intense heat.

"The permeating of the elaterite solution into the minutes pores of substances to which it is applied constitutes a series of thread-like supports of the coating; hence it does not crack or peel. The qualities of the crude product, which have attached to it frequently the name of 'mineral rubber,' are retained, and as a coating solution therefor it readily adjusts itself to gutta percha products effectively, preserving these from degeneration by both nitrogen and oxygen.

"Elaterite solution performs similar service on leather, making a coating thereon which does not crack or peel, and imparting to such articles as automobile upholstery a permanent black gloss, waterproof, and almost indestructible.

"The formula under which elaterite solution is now being marketed is the first worked out permitting its commercial adoption. Previous attempts to put it in solution were accompanied by such high cost that its use industrially was prohibited. The only known elaterite deposits in the world are in Utah."

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Baltimore Museum of Art

The opening of the Baltimore Museum of Art adds another link to the chain of cultural centers that extend from Portland, Maine, west to Portland, Oregon, and South to New Orleans.

The newest of the art museums, established in the old Garret mansion on Mount Vernon Place, in the heart of Baltimore, opened its inaugural exhibition with a private view on Tuesday evening, February 20th, followed on Wednesday, February 21st, by a reception, and on Washington's birthday the building was thrown open free to the public.

The mansion, with its imposing entrance hall and large rooms, has been adapted very effectively to the uses of an art museum by the director, Florence N. Levy. The entire main floor is devoted to exhibits, both permanent and temporary.

The scope of the inaugural exhibition includes paintings and water colors by American artists; etchings by old and modern masters from the Conrad collection; East Indian metal work and wood carving of the sixteenth, seventeenth, and eighteenth centuries; American and English silver and furniture of the eighteenth and early nineteenth centuries; Flemish tapestries; sculpture by American artists; and paintings in oil by American and foreign deceased and contemporary artists.

There is an elaborate illustrated catalogue with a view of the building, drawn by Erik Haupt. The poster announcing the exhibition, displayed the exterior of the building, is by Raymond G. Chard. An interesting program of music was furnished at the opening receptions under the directions of John Itzel.

This opening of the Baltimore Museum is the culmination of a two-year campaign. The museum has been granted a plot of land near John Hopkins University, and expects to build as soon as the necessary funds are available. In the meantime there will be shown in the present quarters permanent and loan collections of the fine and industrial arts, the most interesting exhibitions procurable being brought to Baltimore. It is hoped that the permanent collections will be made up through gifts. Already several paintings, drawings, textiles and porcelains have been presented to the museum. The officers include: President, Mr. Blanchard Randall; vice-presidents, Dr. A. R. L. Dohme and Dr. Hugh H. Young; secretary, Mr Henry H. Wiegand; and treasurer, Mr. B. Howell Griswold, Jr.

Class A Hotel

Architects Allison & Allison, Los Angeles, have completed plans for a new building for the Friday Morning Club, estimated to cost close to $400,000.

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Detail, Residence of S. D. Miller, Esq., Detroit. B. Tuttle, Architect

THE practised eye can visualize the beauty of such brickwork far more vividly than words can describe it. One hundred examples of artistic brickwork have been assembled in "Architectural Details in Brickwork." The plates, issued in three series, each in an enclosed folder, ready for filing, will be sent to any architect requesting them on his office stationery. Address, American Face Brick Association, 1759 Peoples Life Building, Chicago, Illinois.

Field of the Contractor

Present Day Problems of the Building Industry*

By JOHN W. COWPER

President, Associated General Contractors of America

THE construction industry, rated as the second of importance in the nation, has gone forward in the past year with a tremendous stride, the grand total in volume of work done being the largest of any year in our history. I have not the complete figures, but in building construction alone the total approximates $4,000,000,000, of which over 40 per cent was for housing or residential purposes, in part making up the very great deficiency in this type of buildings brought about by the war.

With this great activity in the building industry, we have seen costs of construction rise sharply. Assuming 1913 as 100 per cent, building costs rose to over 270 per cent at the peak in 1920, and, at the end of 1921 they have declined to approximately 160 per cent, which, I believe, considering the post-war conditions, was very near what we might have expected as normal. But with the increased construction in 1922, prices have again risen, until in December the record shows that they have reached 190 per cent.

While labor, both skilled and common, is now receiving as high, if not the highest, wages of any time in our national history, and with the indications pointing to demands for further increases, you will agree, considering the fact that wages are approximately 45 per cent of the direct cost of building, that we are probably facing a period of higher costs of construction which, if continued, will prove to be a serious check to the healthy progress of the construction industry. We must find a way to stop this trend towards higher prices, and while we believe in sane ideals and ambitions for the so-called laboring class of this country, a continuance for this present spree of short hours and high wages is bound ultimately to result to their detriment.

We are suffering from a shortage of labor in all industries, and particularly in construction. The supply of workmen is not keeping pace with the demand, which in itself is an unsound condition. We need, and should have, a revision of our immigration laws so as to permit of a sufficient number of immigrants, those to be if a superior quality (and the latter is more important than the former), based on a selective system, elastic as to the numbers admitted and regulated by the needs of our industries; and this law should by all means include a provision for examination by proper authorities of the prospective immigrants at the port of embarkation, the unit of admission to be by families and not individuals, for our own good and, just as important, for the good of the immigrant and of humanity.

We are dependent in this country, to a large extent, upon foreign countries for our supply of labor, and from them it is our duty to make, as well as from the younger generation of our citizens, the artisans and skilled mechanics that we require. It is, therefore, necessary that we should advocate the establishment of trade or vocational schools, and, by all means, we must develop to its highest possible degree the apprenticeship system in all lines, not only for the purpose of supplying ourselves, from a selfish standpoint, with the mechanics we require, but to build up our citizenship and help every man to a higher plane in life.

I should like to refer to the American Construction Council, organized about a year ago, of which Mr. Franklin D. Roosevelt, former Assistant Secretary of the Navy, is the head. This Council, composed of all elements of the construction industry, consists of engineers, architects, contractors, manufacturers of construction materials and labor, and will be what its name implies, the great headquarters of the construction industry, where, periodically, every element can get together to discuss and iron out differences between the public and themselves, as well as any differences that may exist or arise between the different elements of the industry. In other words, this Council will be the clearing house, as well as the mentor, of the construction industry.

We commend, for the consideration of the American Construction Council, the combating of the erroneous propaganda which has been fed to the public in a wholesale manner, without facts to warrant it, that public work should be done without the aid of those skilled, experienced and regularly engaged in that line

*Address at annual convention of Associated General Contractors of America, Los Angeles.

of work, who are the only one able and competent to render such services efficiently and at the smallest costs; and we might extend these same principles to other lines of commercial industry. Due to timidity or political disadvantage, the construction industry as a rule has not stood solidly against this menace to taxpayers, as well as their own industry, and it is high time that the public should be informed of the true facts.

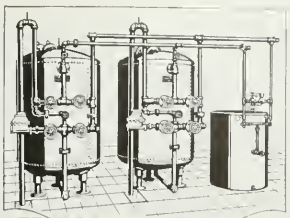
We must combat in ourselves also any elation that may come from being charged with making large profits. We like to be thought of as successful, but as an industry we are certainly blessed with a high percentage of failures, and we must not forget that we are engaged in one of the most hazardous of occupations. Our losses are often enormous, our competition extremely keen, and our profits far below the general average of other industries; but even these tremendous losses which we suffer in our private business will be as nothing compared with the losses sustained by taxpayers of this country if it ever enters into an era of public construction by political appointees without qualification, competency or experience in such hazardous undertakings. Private industry will always be able to perform the great works of the country better than public effort, with all the favoritism, expediency, incompetency and inefficiency that accompanies the latter.

We, gentlemen, are often done an injustice by the shaping of public opinion through incorrect, unfair and untrue publicity by demagogues and other uninformed persons, and it should be the function of this Council, when fully and completely organized, to take cognizance of all matters affecting the construction industry, and, upon the most reliable information obtained from thorough investigation, voice the true facts, so that public opinion may arrive at a fair conclusion. The public usually, I believe, is fair if given the facts, and its conclusion, if an evil exists, will in time correct that evil. On the other hand, if the conclusion has been a wrong one, based on misstatements, when given the fair conditions, I believe public opinion is just as ready to accept that condition, even though it may not be what it desires.

Big Increase in Birchfield Boiler Sales

The Birchfield Boiler Company reports sales of Birchfield steel heating boilers increasing daily. Orders for more than two car loads of boilers were taken in California during February.

These boilers are for installation in the Central high school, Fresno; McKinley school, Pasadena; Glendale school, Glen-



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100 Per Cent Soft Water — What it Means in the Home

100-per-cent soft water, supplied by the Wayne Water Softener, lightens every household task. It saves fuel in cooking, and clothes in laundering. It saves soap. It makes the bath more delightful.

The Wayne Softener is simple to put in. It costs little to operate. No chemicals are used, and it is entirely automatic.

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It was inevitable that Wayne Water Softeners should capture, as they actually are capturing, the water-softening market. Wayne's principle of operation is clearly superior. Foremost water softening engineers, backed by Wayne's large resources and more than 30 years manufacturing experience, are back of Wayne Softeners, and they are installed under a rigid guarantee of 100-per-cent satisfaction.

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Water Softeners
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Perfect Concealment of a Wall Bed

The view on the left shows the new "California" Secret Installation as it is during the day. It is only necessary to touch a small ornamental fixture and the bed swings open as if by magic. The view at the extreme right shows the door half open. The foot frame automatically folds over the mattress and holds the bedclothing in place. The center view shows the bed lowered ready for use. The bed itself matches in beauty and finish with the finest furnishings.

INVESTIGATE and you will SPECIFY "California" Secret Installation Wall Beds.

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dale; Midwick country club, Alhambra; and First National Bank, Long Beach.

Two of the more important orders received locally were boilers to be installed in the new court house at Kelso, and the office building of the Long Bell Lumber Company, Longview.

Indications are that the enlarged plant of the company will be taxed to its utmost, since the sales have more than doubled January and February of last year.

Move to Larger Quarters

The Cobbledick-Kibbe Glass Company, wholesale and retail dealers in glass of all kinds and manufacturers of mirrors and art glass, have moved into larger quarters at 666-668 Howard street, San Francisco. This company are exclusive sales agents for Northern California of the Zouri safety store front construction.

Among the recent contracts awarded the Cobbledick-Kibbe Co. is the glass and glazing in the Federal Reserve Bank Building now under construction in San Francisco.

The Oakland office of the company has recently completed its new warehouse adjacent to the present buildings at Third and Washington streets.

Goes to U. S. Metal Products Company

Mr. Arthur H. Meyn, formerly sales engineer for the Detroit Steel Products Company in San Francisco, is now associated with the United States Metal Products Company, 330 Tenth street, San Francisco, as sales and service engineer.

Newspaper Building

Architects Weeks and Day of San Francisco are preparing plans for a large concrete publishing plant for Mr. M. H. De Young, proprietor of the San Francisco Chronicle. The building will be three stories and basement, and will be erected at Mission and Fifth streets. The cost will exceed $250,000.

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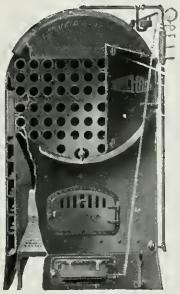

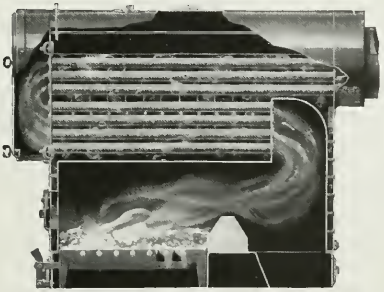

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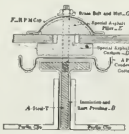

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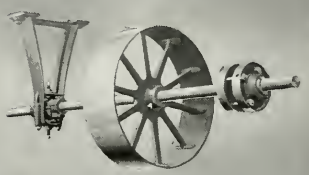

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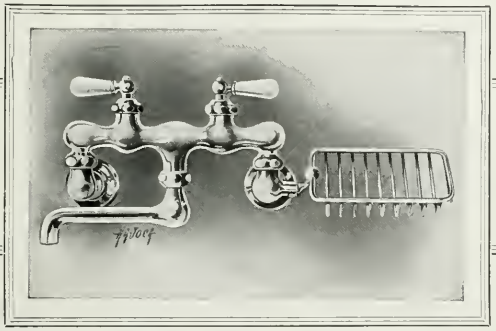

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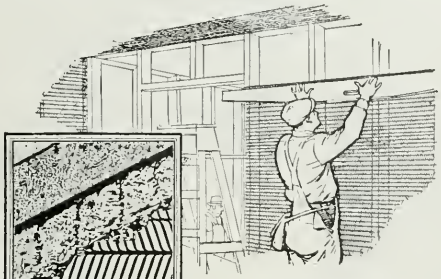

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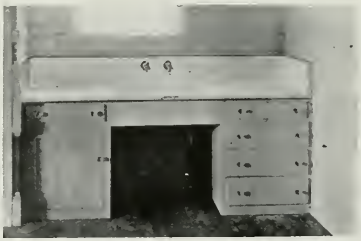

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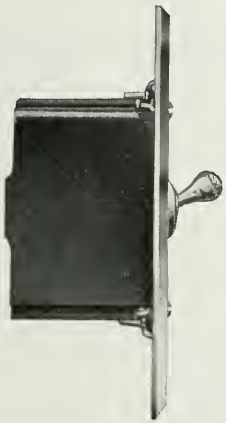
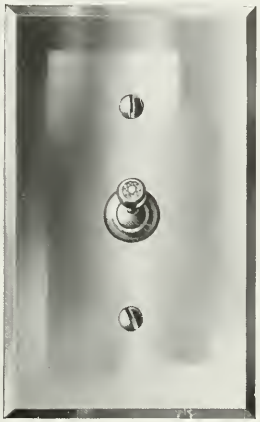
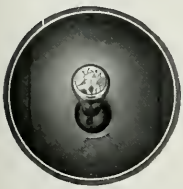


Profile view of Flush Switch Type 8121, assembled, with Flush Plate Type 8291.



Flush Switch Type 8121 with Luminous Tip Toggle and Rectangular Screwed-on Standard Flush Plate Type 8291.

HUBBELL *De Luxe* TOGGLE SWITCHES



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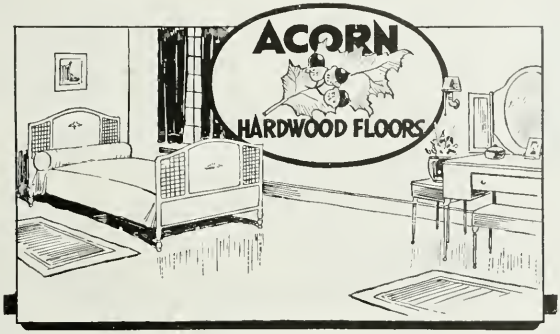

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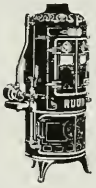

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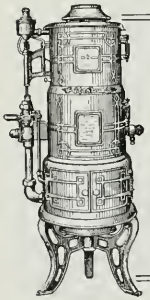

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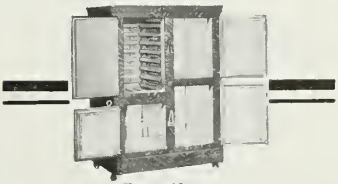

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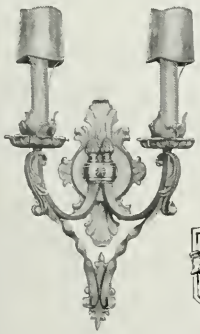

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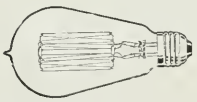

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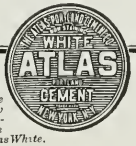

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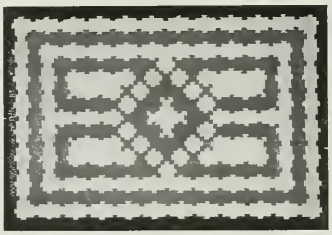

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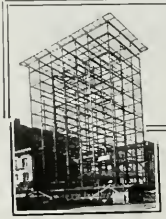

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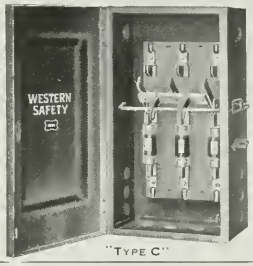

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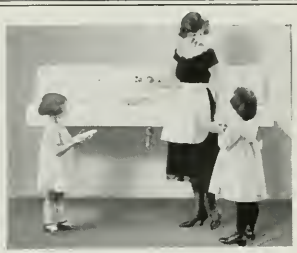

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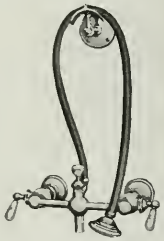

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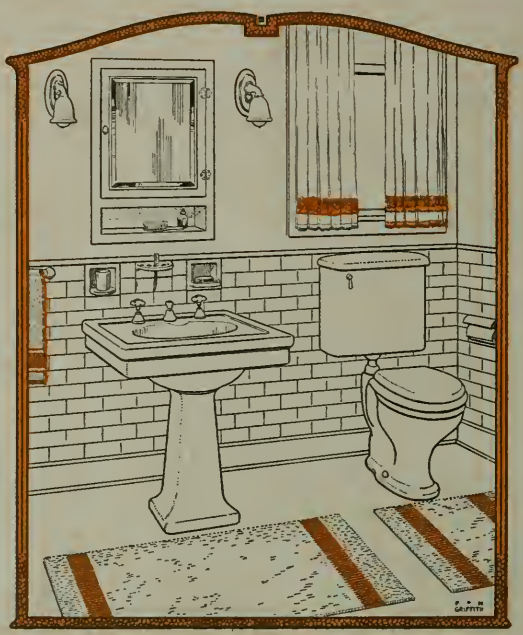

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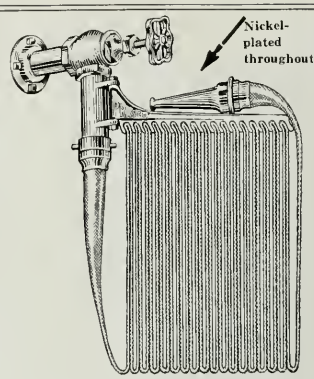

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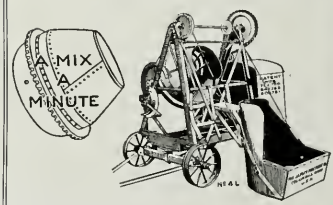

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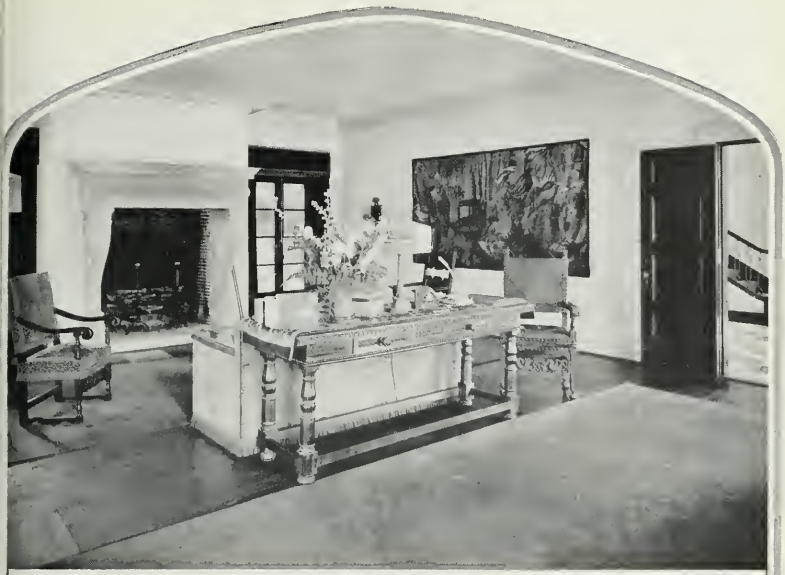

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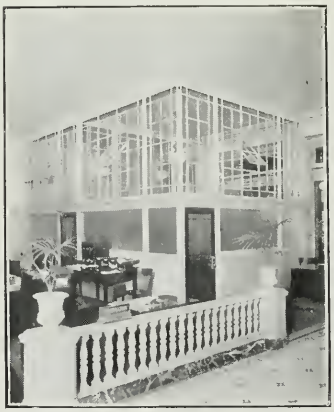

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Palace Hardware Company, Agents Corbin goods, 581 Market St., San Francisco.
Richards-Wilcox Mfg. Co., Aurora; Ewing-Lewis Co., 626 Underwood Bldg., San Francisco.

BUILDING MATERIALS, SUPPLIES, ETC.
Pacific Materials Co., Underwood Bldg., San Francisco.
Waterhouse-Wilcox Co., 523 Market St., San Francisco.
C. H. Jensen Co., Call Building, San Francisco.
John R. Steffens-Lomax Co., Monadnock Bldg., San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco

BUILDING PAPER
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

BUILDING TILE (Burned Clay)
California Brick Co., 604 Mission St., San Francisco.

CABINET MAKERS
Home Manufacturing Company, 543 Brannan St., San Francisco.
Mullen Manufacturing Company, 64 Rausch St., San Francisco.
Lannom Bros. Mfg. Co., 5th and Magnolia Sts., Oakland.
Pacific Mfg. Co., San Francisco, Los Angeles and Oakland.

CASEMENT WINDOW HARDWARE
Richards-Wilcox Mfg. Co., Aurora, Ill., and Underwood Bldg., San Francisco.

CEMENT
Atlas Portland Cement Co., agencies in all principal Coast cities.
Best Bros. Keene's Cement Co., John R. Steffens-Lomax Co., Agents, Monadnock Bldg., San Francisco.
Old Mission Portland Cement Co., Mills Bldg., San Francisco.
Medusa Stainless White Cement, plain and waterproofed, carried in stock and sold by leading building supply dealers in California, Oregon and Washington.
The Paraffine Companies, San Francisco, and principal Coast Cities.

CEMENT EXTERIOR WATERPROOF PAINT
Armorite, sold by W. P. Fuller & Co., all principal Coast cities.
Minwax Co., Inc., 22 Batery St., San Francisco and 653 S. Clarence St., Los Angeles.
The General Fireproofing Company, 20 Beale Street, San Francisco

CEMENT STUCCO
"California" sold by Atlas Mortar Company, Holbrook building, San Francisco.

CEMENT TESTS—CHEMICAL ENGINEERS
Robert W. Hunt & Co., 251 Kearny St., San Francisco.

CLAY PRODUCTS
California Brick Co. and Livermore Fire Brick Works, 604 Mission St., San Francisco.
Cannon & Co., Sacramento, Cal.
Gladding, McBean & Co., Crocker Bldg., San Francisco.
Los Angeles Pressed Brick Co., Frost Bldg., Los Angeles.
Tropico Potteries, Inc., Glendale, Cal.
United Materials Co., Sharon Bldg., San Francisco.

CLOCKS—ELECTRIC TIME
Pacific Electric Clock Co., 714 Wells-Fargo Bldg. San Francisco.
Standard Electric Time Co., 461 Market St., San Francisco.

COLD STORAGE PLANTS
Cyclops Iron Works, 837 Folsom St., San Francisco.

COMPOSITION FLOORS
"Linotol" plastic flooring, Hill, Hubbell & Co., 115 Davis St., San Francisco; 410 San Fernando Bldg., Los Angeles.
Western Asbestos Magnesia Company, 25 South Park, San Francisco.
Hoff Magnesite Co., San Francisco. Miller & Alf, 337 Monadnock Bldg., San Francisco, general agents.

CONCRETE BUILDING ACCESSORIES
John R. Steffens-Lomax Co., 951 Monadnork Bldg., San Francisco.

CONCRETE OR CEMENT HARDENER
Gunn, Carle & Co., Inc., 444 Market St., San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco

CONCRETE MIXERS
Foote and Jaeger mixers sold by Edward R. Bacon Co., 51 Minna St., San Francisco, also Los Angeles.

CONCRETE REINFORCEMENT
Edw. L. Soule Co., Rialto Bldg., San Francisco.
Gunn, Carle & Co., Inc., 444 Market St., San Francisco.
Clinton Welded Wire Fabric, Wickwire Spencer Steel Corporation, 111 Townsend St., San Francisco.
Judson Mfg. Co., 817-821 Folsom St., San Francisco.
Pacific Coast Steel Company, Rialto Bldg., San Francisco.
Triangle Mesh Fabric. Sales agents, Pacific Materials Co., 525 Market St., San Francisco.
Truscon Steel Co., 709 Mission St., San Francisco.
Badt-Falk Co., Call-Post Bldg., San Francisco.

CONDUITS
"Sherarduct," Garnett Young & Company, 612 Howard St., San Francisco.

CONTRACTORS, GENERAL
Barrett & Hilp, 918 Harrison St., San Francisco.
Herbert Beckwith, Everson Bldg., Oakland.
Larsen-Siegrist Co., Inc., 807 Claus Spreckels Bldg., San Francisco.
R. W. Littlefield, 357-12th St., Oakland.
K. E. Parker Co., Inc., Clunie Bldg., San Francisco.

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John M. Bartlett, 357 Twelfth St., Oakland.
Chas. Stockholm & Son, Monadnock Bldg., San Francisco.
Clinton Construction Company, 923 Folsom St., San Francisco.
Monson Bros., 251 Kearny St., San Francisco.
Geo. Wagner, 251 Kearny St., San Francisco.
T. B. Goodwin, 180 Jessie St., San Francisco..
McLeran & Co., R., Hearst Bldg., San Francisco.
Robert Trost, 26th and Howard Sts., San Francisco.
I. M. Sommer, 401 Balboa Bldg., San Francisco.
Jas. L. McLaughlin, 251 Kearny St., San Francisco.
Alfred H. Vogt, 185 Stevenson St., San Francisco.
Lange and Bergstrom, Sharon Bldg., San Francisco and Washington Bldg., Los Angeles.
David Nordstrom, 4146 Emerald Street, Oakland.
The Holton Company, 806 Syndicate Building, Oakland.

CONTRACTORS' EQUIPMENT
Edward R. Bacon Co., 51 Minna St., San Francisco, and Los Angeles.

CONVEYING MACHINERY
Messe & Gottfried, San Francisco, Los Angeles, Portland and Seattle.

CONVENIENCE OUTLETS
Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St.

CORK TILE
Van Fleet-Freear Co., Sharon Bldg., San Francisco.

CRUSHED ROCK
Coast Rock & Gravel Co., Call-Post Bldg., San Francisco.

CURTAINS—STEEL, ROLLING, FIREPROOF
J. G. Wilson Corp., 621 N. Broadway, Los Angeles.

DAMP-PROOFING AND WATERPROOFING
Armorite Damp Resisting Paint, made by W. P. Fuller & Co., San Francisco.
"Imperial," manufactured by Brooks & Doerr, Merchants National Bank Building, San Francisco.
Samuel Cabot Co., Boston; represented in San Francisco by Pacific Materials Co., Underwood Bldg., San Francisco.
"Pabco" Damp-Proofing Compound, sold by the Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.
Western Asbestos Magnesia Company, 25 South Park, San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco

DOOR HANGERS
McCabe Door Hanger Company, leading hardware stores.
Pitcher Hanger, sold by National Mill & Lumber Co., 326 Market St., San Francisco.
Stanley Works, New Britain, Conn., Monadnock Bldg., San Francisco.
Richards-Wilcox Mfg. Co., Underwood Bldg., San Francisco.

DOORS—VANISHING
W. L. Evans, 700 Block B., Washington, Ind.

DRAIN PIPE AND FITTINGS
"Corrosiron" Acid Proof, manufactured by Pacific Foundry Co., Harrison and 18th Sts., San Francisco.

DRINKING FOUNTAINS
Haws Sanitary Drinking Faucet Co., 1808 Harmon St., Berkeley, and C. F. Weber & Co., San Francisco and Los Angeles.
Crane Company, San Francisco, Oakland, and Los Angeles.
Pacific Porcelain Ware Co., 67 New Montgomery St., San Francisco.
Haines, Jones & Cadbury Co., 857 Folsom St., San Francisco.

DUMB WAITERS
Spencer Elevator Company, 166-7th St., San Francisco.
San Francisco Elevator Company, Inc., 860 Folsom St., San Francisco.

ELECTRICAL APPLIANCE SUPPLIES
Electric Appliance Company, 809 Mission St., San Francisco.

ELECTRICAL CONTRACTORS
Butte Electrical Equipment Company, 530 Folsom St., San Francisco.
Butte Electric & Manufacturing Co., 534 Folsom St., San Francisco.
Central Electric Company, 185 Stevenson St., San Francisco.
NePage, McKenny Co., 589 Howard St., San Francisco.
Newbery Electrical Co., 359 Sutter St., San Francisco.
Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.
Globe Electric Works, 1959 Mission St., San Francisco.
M. E. Ryan, Redwood City, and 520 Clunie Bldg., San Francisco.
H. S. Tittle, 766 Folsom St., San Francisco.
Brown-Langlais Electrical Construction Co., 313 Fifth Street, San Francisco.
A. F. Wells Company, 155 Second St., San Francisco.

ELEVATOR MOTORS AND CONTROL
Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., and First National Bank Bldg., San Francisco, Calif.

ELECTRIC PLATE WARMER
The Prometheus Electric Plate Warmer for residences, clubs, hotels, etc. Sold by M. E. Hammond, Pacific Bldg., San Francisco.

ELECTRICAL SUPPLIES AND EQUIPMENT
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Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St.

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ELECTRIC TOWEL
The AIRDRY Electric Towel for clubs, office buildings, hotels, schools, etc., represented on Pacific Coast by Airdry Co., of California, 155 Montgomery St., San Francisco.

ELEVATORS—PASSENGER and FREIGHT
Pacific Elevator & Equipment Co., 1129 Howard Street, San Francisco.
Otis Elevator Company, Stockton and North Point, San Francisco.
Spencer Elevator Company, 166-7th St., San Francisco.
San Francisco Elevator Co., 860 Folsom St., San Francisco.
Union Construction Company, Balfour Bldg., San Francisco.

ELEVATOR DOOR HARDWARE
Richards-Wilcox Mfg. Co., Underwood Bldg., San Francisco.

ENGINEERS—CONSULTING, ELECTRICAL, MECHANICAL
Chas. T. Phillips, 550 Montgomery St., San Francisco.
Hunter & Hudson, Rialto Bldg., San Francisco.
Ralph E. Dodge, 251 Kearny St., San Francisco.
Meeae & Gottfried, San Francisco, Seattle, Portland, Los Angeles.

FANS AND BLOWERS
Tiltz Engineering and Equipment Co., 479 Monadnock Building, San Francisco.

FAIENCE TILE
Tropico Potteries, Inc., Glendale, Cal.

FELTS
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

FENCES—WIRE AND IRON
Standard Fence Company, 432 Bryant, San Francisco and 60th and Lowell Sts., Oakland.

FIRE BRICK, TILE & CLAY
Livermore Fire Brick Works, 604 Mission St., San Francisco.

FIRE EXIT LATCHES
Vonnegut Hardware Co., Indianapolis, Ind., represented in San Francisco by Abcel Jensen Co., Call Building.

FIRE ESCAPES
Michel & Pfeffer Iron Works, 1415 Harrison St., San Francisco.
Palm Iron & Bridge Works, Sacramento.
Western Iron Works, 141 Beale St., San Francisco.

FIRE HOSE RACKS
Plant Rubber & Asbestos Works, 537-539 Brannan Street, San Francisco.

FIRE-PROOF DOORS
Forderer Cornice Works, 269 Potrero Ave., San Francisco.
U. S. Metal Products Co., 330-10th St., San Francisco.
Kinnear Mfg. Co., represented in San Francisco by Pacific Materials Co., Underwood Bldg.
The J. G. Wilson Corporation, 621 North Broadway, Los Angeles.

FIRE SPRINKLERS—AUTOMATIC
Fire Protection Engineering Co., 67 Main St., San Francisco.
Grinnell Company of the Pacific, 453 Mission St., San Francisco.
Independent Automatic Sprinkler Co., 72 Natoma St., San Francisco.
Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.

FIRE RETARDING PAINT
The Paraffine Companies, Inc., 34 First St., San Francisco.
Fire Retardent Products Co., 2838 Hannah St., Oakland. Cal.

FIXTURES—BANK, OFFICE, STORE, ETC.
Home Manufacturing Company, 543 Brannan St., San Francisco.
Mullen Manufacturing Co., 64 Rauach St., San Francisco.
C. F. Weber & Co., 985 Market St., San Francisco, and 210 N. Main St., Los Angeles, Cal.

FLOOR CLIPS
Bull Dog Floor Clip Sales Co., 77 O'Farrell St., San Francisco, and 600 Metropolitan Bldg., Los Angeles.

FLOORS—TILE, CORK, ETC.
Mangrum & Otter, 827 Mission St., San Francisco.
Von Fleet-Freear Co., 61 New Montgomery St., San Francisco, and 420 S. Spring St., Los Angeles.

FLOOR VARNISH
Bass-Hueter and San Francisco Pioneer Varnish Works, 816 Mission St., San Francisco.
Fifteen for Floors, made by W. P. Fuller & Co., San Francisco.
Standard Varnish Works, Chicago, New York and San Francisco.
R. N. Nason & Co., San Francisco and Los Angeles.
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.
Murphy's Transparent Floor, Uhl Bros., San Francisco, Seattle, Portland, Oakland, Los Angeles.

FLOORS—HARDWOOD
Oak Flooring Manufacturers' Association of the United States, Ashland Block, Chicago, Ill.
Cadwallader, Gibson Co., 5th & Brannan St., San Francisco.
Parrott & Co., 320 California St., San Francisco.
Strable Hardwood Company, 511 First St., Oakland.
E. L. Bruce Co., Manufacturers, Memphis, Tenn.
White Bros., 5th and Brannan Sts., San Francisco.

FLOOR TREATMENT—HARDWOOD, COMPOSITION AND CONCRETE
Minwax Co., Inc., 22 Battery St., San Francisco and 653 S. Clarence St., Los Angeles.

FLOORS—MASTIC—FLOOR COVERING
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FLUE LINING
- California Brick Company, 604 Mission St., San Francisco.

FLUSH VALVES
- Handy Self-Cleaning Flush Valve Co., 731 Folsom St., San Francisco.

FUEL OIL SYSTEMS
- S. T. Johnson Co., 1337 Mission St., San Francisco.
- S. F. Bowser & Co. Inc., 612 Howard St., San Francisco.
- Wayne Tank and Oil Co., 631 Howard St., San Francisco.

FURNACES—WARM AIR
- Mangrum & Otter, 827 Mission St., San Francisco.
- Montague Range and Furnace Co., 826 Mission St., San Franciaco.

FURNITURE—OFFICE, SCHOOL, CHURCH, ETC.
- Home Manufactucing Company, 543 Brannan St., San Francisco.
- C. F. Weber & Co., 985 Market St., San Francisco.
- F. W. Wentworth & Co., 539 Market St., San Franciaco.
- W. & J. Sloane, 216 Sutter St., San Francisco.
- Western States Seating Co., 133 Kearny St., San Francisco.

FURRING TILE (Burned Clay)
- California Brick Company, 604 Mission St., San Francisco.

GARAGE HARDWARE
- The Stanley Works, New Britain, Conn., Coast sale offices, San Francisco, Los Angeles and Seattle, Wash.
- Richards-Wilcox Mfg. Co., Aurora, Ill., and Underwood Bldg., San Francisco.

GLASS
- American Window Glass Co., represented by L. H. Butcher Co., 862 Mission St., San Francisco.
- Cobbledick-Kibbe Glass Co., 666 Howard St., San Francisco.
- Fuller & Goepp, 32 Page St., San Francisco, and Jackson, at Eleventh St., Oakland.
- W. P. Fuller & Company, all principal Coast cities.

GRADING, WRECKING, ETC.
- Dolan Wrecking & Construction Co., 1607 Market St., San Francisco.

GRANITE
- Raymond Granite Co., Potrero Ave., and Division St., San Francisco.

GRAVEL AND SAND
- Coast Rock & Gravel Co., Call-Post Bldg., San Francisco.
- Del Monte White Sand, sold by Del Monte Properties Co., Crocker Bldg., San Francisco.

GYMNASIUM EQUIPMENT—LOCKERS, ETC.
- Ellery Arms Co., 583 Market St., San Francisco.
- George Trask, Durand Steel Locker Co., 76 Sacramento St., San Francisco.

HARDWARE
- Joost Bros., agents for Russell & Erwin Hardware, 1053 Market St., San Francisco.
- The Stanley Works, New Britain, Conn.; Coast sales offices, San Francisco, Los Angeles, and Seattle, Wash.
- Corbin hardware, sold by Palace Hardware Co., 581 Market St., San Francisco.
- Richards-Wilcox Mfg. Co., Aurora, Ill., Ewing-Lewis Co., 626 Underwood Bldg., San Francisco.
- Vonnegut hardware, sold by Abeel-Jensen Co. Call Bldg., San Francisco.

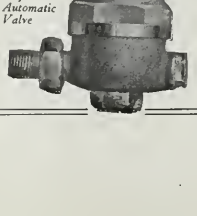
HARDWOODS
- White Brothers, 5th and Brannan Streets, San Francisco.

HEATING AND VENTILATING CONTRACTORS
- Atlas Heating and Ventilating Company, Inc., Fourth and Freelon Sts., San Francisco.
- Alex Coleman, 706 Ellis St., San Francisco.
- Gilley-Schmid Company, 198 Otis St., San Francisco.
- Hateley & Hateley, Mitau Bldg., Sacramento.
- Mangrum & Otter, 827-831 Mission St., San Francisco.
- Lawson & Drucker, 450 Hayes St., San Francisco.
- Carl T. Doell, 467 21st St., Oakland.
- Luppen, Hawley & Thing, 906 7th St., Sacramento.
- William F. Wilson Co., 328 Mason St., San Francisco.
- W. H. Picard, 5656 College Ave., Oakland.
- Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.
- Scott Company, 243 Minna St., San Francisco.

HEATING & VENTILATING EQUIPMENT
- W. S. Haines & Co.'s steam sperialties. O. M. Simmons Company, 115 Mission St., San Francisco.
- Hulting, Hurst & Hulting, representing Jas. P. Marsh Co., Monadnock Bldg., San Francisco.
- Illinois Engineering Co., Pacific Bldg., San Francisco.
- Tiltz Engineering & Equipment Co., 470 Monadnock Bldg., San Francisco.
- Williams Radiator Company, 5 Monadnock Bldg., Arcade, San Francisco.

HEATERS, WATER-GAS, ELECTRIC, ETC.
- Pittsburg Water Heater Company, 478 Sutter St., San Francisco.
- Rudd Automatic Water Heater, sold by Rudd Heater Company, 431 Sutter St., San Francisco.

HEATERS, GAS GRATES, RADIATORS, ETC.
- General Gas Light Company, 768 Mission St., San Francisco.
- Ra-Do Fumeless Gas Radiators, Potter Radiator Corporation, 478 Sutter St., San Francisco
- Humphrey Radiantfire, sold by Rudd Heater Company, 431 Sutter St., San Francisco.



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ARCHITECTS' SPECIFICATION INDEX—Continued

Williams Radiator Company, "Gas Steam Radiators," 5 Monadnock Building, Arcade, San Francisco.

HOLLOW BUILDING TILE (Burned Clay)
California Brick Company, 604 Mission St., San Francisco.

HOLLOW TILE BLOCKS
Cannon & Co., plant at Sacramento; 77 O'Farrell St., San Francisco.
California Brick Company, 604 Mission St., San Francisco.
Gladding, McBean & Co., San Francisco, Los Angeles, Oakland and Sacramento.
Los Angeles Pressed Brick Co., Frost Bldg., Los Angeles.

HOSE—UNDERWRITERS UNLINED LINEN—RUBBER
Plant Rubber & Asbestos Works, 537-539 Brannan Street, San Francisco.

HOSPITAL FIXTURES
Mott Company of California, 553 Mission St., San Francisco.

HOSPITAL SIGNAL SYSTEMS
Chicago Signal Co., represented by Garnett Young & Co., 612 Howard St., San Francisco.
Holtzer-Cabot Electric Company, San Francisco Branch, 408 Claus Spreckles Building.

ICE MAKING MACHINERY
Cyclops Iron Works, 837 Folsom St., San Francisco.

INCINERATORS
The Incinerite, sold by M. E. Hammond, Mezzanine, Pacific Building, San Francisco.

INDUSTRIAL LIGHTING EQUIPMENT
Westinghouse Electric and Mfg. Co., East Pittsburgh, Pa., and First National Bank Building, San Fnnrisco.

INGOT IRON
"Armco" brand, manufactured by American Rolling Mill Company, Middletown, Ohio, and 10th and Bryant Sts., San Francisco.

INSPECTIONS AND TESTS
Robert W. Hunt & Co., 251 Kearny St., San Francisco.

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Van Fleet-Freear Co., Sharon Bldg., San Francisco.

INSURANCE BROKERS
William Healey & Son, Crocker Bldg., San Francisco.

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A. Knowles, Call-Post Bldg., San Francisco.

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Wickwire Spencer Steel Corporation, 111 Townsend St., San Francisco.

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Electric Appliance Company, 809 Mission St., San Francisco.
Roberts Mfg. Co., 663 Mission St., San Francisco.

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Indiana Limestone Quarrymen's Association, Box 770, Bedford, Indiana.

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D. N. & E. Walter & Co., 562 Mission St., San Francisco.
The Paraffine Companies, factory in Oakland; office, 34 First St., near Market, San Francisco.
W. & J. Sloane, 216 Sutter St., San Francisco.

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Hart-Wood Lumber Co., Fifth and Berry Sts., San Francisco.
Pacific Manufacturing Company, San Francisco, Oakland, Los Angeles and Santa Clara.
Pope & Talbot, foot of Third St., San Francisco.
Santa Fe Lumber Co., 16 California St., San Fnnrisco.
Sunset Lumber Company, First and Oak Sts., Oakland.
White Bros., 5th and Brannan Sts., San Francisco.

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Ray Cook Marble Company, foot of Powell St., Oakland.
Joseph Musto Sons, Keenan Co., 535 N. Point St., San Francisco.
Vermont Marble Co., Coast branches, San Francisco, Portland and Tacoma.
Tompkins-Kiel Marble Company, 505 Fifth Ave., New York; also Chicago, Philadelphia and San Francisco.
Columbia Marble Co., 413 Rialto Bldg., San Francisco.

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Leather Mat Manufacturing Co., 340 Sansome St., San Francisco.

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U. S. Metal Products Co., 330 Tenth St., San Francisco.

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National Mill and Lumber Co., San Francisco and Oakland.
Lannom Bros. Mfg. Co., 5th and Magnolia Sts., Oakland.

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Bunting Iron Works, 1215 First Nat. Bank Bldg., San Francisco.
Coen Co., Inc., 112 Market St., San Francisco
Fess System Co., 220 Natoma St., San Francisco.
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G. E. Witt Co., 862 Howard St., San Francisco.
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Federal Ornamental Iron and Bronze Co., 16th St., and San Bruno Ave., San Francisco.
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Palm Iron & Bridge Works, Sacramento.
C. J. Hillard Company, Inc., 19th and Minnesota Sts., San Francisco.
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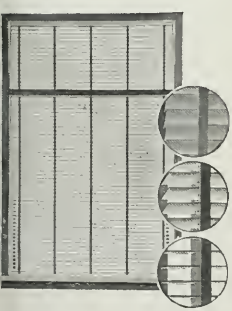

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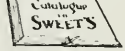

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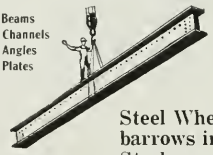

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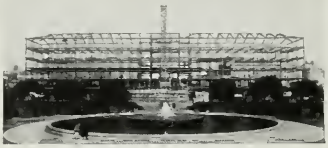

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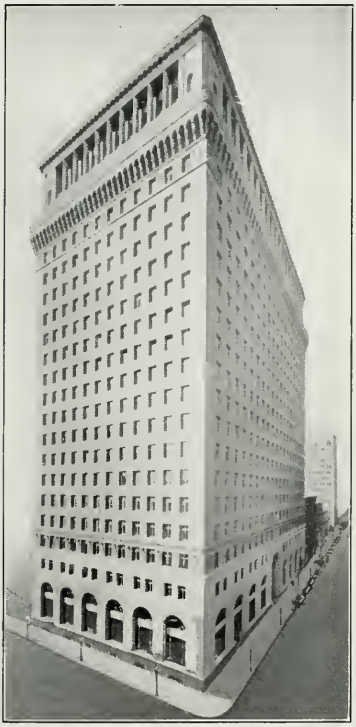

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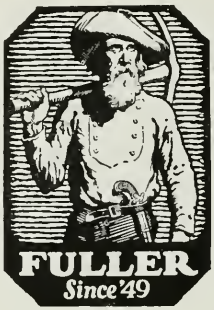

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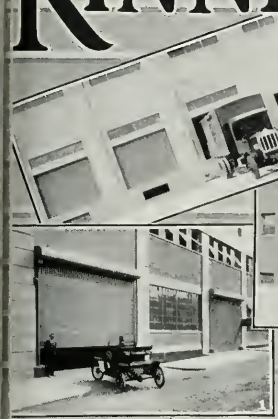

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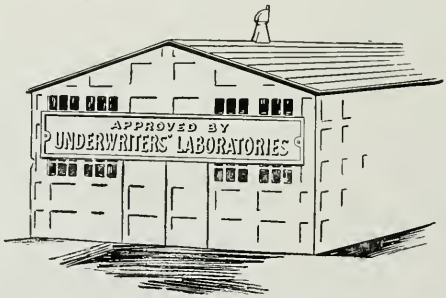

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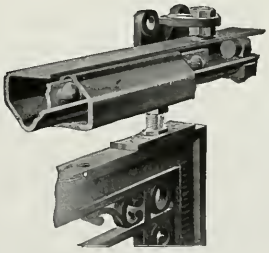

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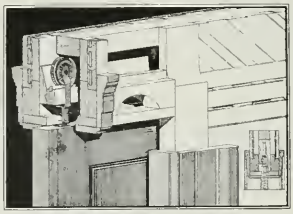

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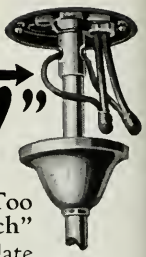

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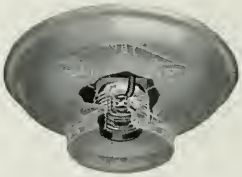

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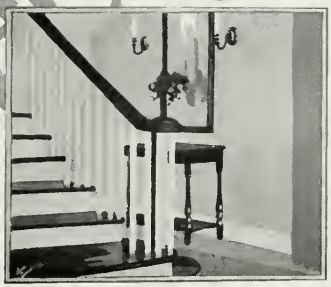

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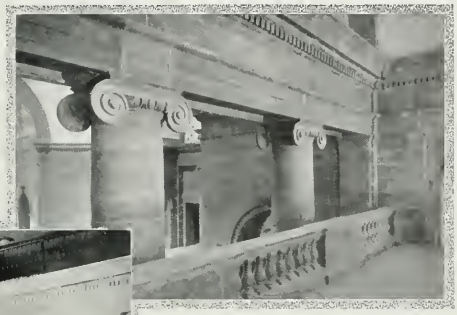

Napoleon Gray Marble wainscot in Trading Room, New York Stock Exchange Annex. Trowbridge & Livingston, Architects. Photograph reproduced by permission of New York Stock Exchange Building Co.

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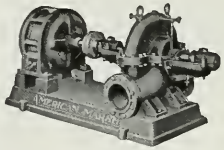

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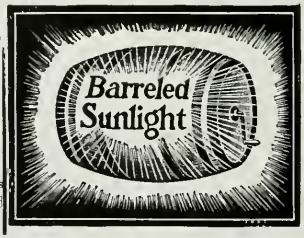

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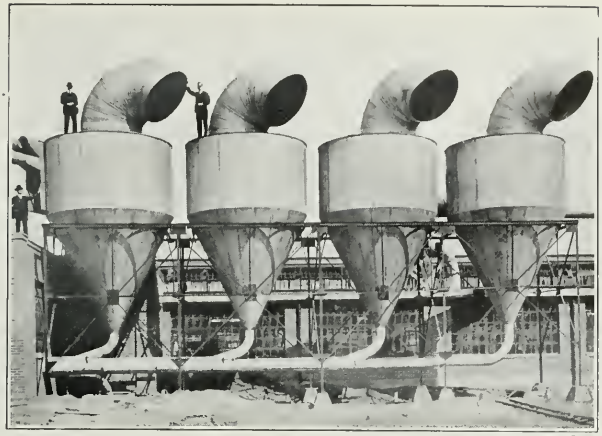

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> "In comparison between 'Armco' and steel, the working qualities of 'Armco' are far superior to that of any steel I have ever worked, and 'Armco' Ingot Iron will last many times longer in jobs that require a rust-resisting material than any material I have ever used."

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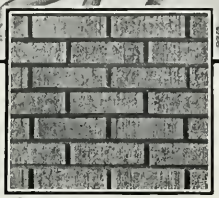

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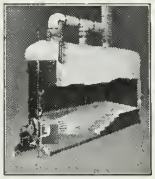

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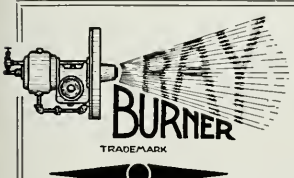

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Published Monthly by
THE ARCHITECT and ENGINEER *Inc.*
626-627 Foxcroft Building-San Francisco
W. J. Kierulff, *President* — Frederick W. Jones, *Vice-President* — T. B. Penhorwood, *Secretary*

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THE
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APRIL
1923

VOL LXXIII.
No. 1

Reflections on Houses

By IRVING F. MORROW

THE spring house number contains a miscellany of houses of various sizes, costs, and styles, but all sophisticated. That is to say, they are conscious of their aims and not unaware of their achievements.

From a consideration of the selection and arrangement of this material I went into the country. Buildings appeared only at long intervals, seen across open spaces. Flowers of every hue, yellow, orange, white, blue, pink, purple, stretched out in great expanses. New grass and new buds on the clustered trees freshened the rolling hillsides. Clouds raced across the valleys and yellow sunshine and blue shadow played over the ranges.

Now it may seem that all this has little or nothing to do with houses. Possibly it may have been the force of contrast which set my mind wandering over certain phases of house design.

But I am not sure, after all, that this has so little to do with houses. It is the background into which we must build; the background which we can never totally eliminate nor mask, despite the most perversely efficient of our efforts. It should be one of the determinants of our spiritual point of view. Architects are only too apt to withdraw from a quickening contact with nature into a timid reliance on archaeological books. We know what happens to painters when they neglect nature for the studio. Architects do not copy nature, but they can none the less go to seed in the drafting room.

* * * *

When you ride along the roads in the California farming country, you look out across the valleys to clusters of farm buildings—barns, sheds, stables, silos, water towers, in endless combination. They are rudimentary in construction, unadorned, whitewashed in finish. They are planned and built with no thought of what the artist means by design. The practical farmers would repudiate, probably with indignation, any intention of working for an effect. It is all sound technical

common sense. And yet the sensitive eye will readily recognize in many of these business-like farm groups some of the finest architectural compositions in the state. They are simple, obviously adapted to ends. In plan, form, fenestration, they are the most direct solutions of their respective problems. The scale is generous.

And yet, when these people who have unwittingly achieved compositions trained architects might envy, begin consciously to design the most personal items of their establishments—their houses—they

HOUSE AT SARATOGA, CALIFORNIA
Julia Morgan, Architect

descend almost without exception to inconceivable depths of paltriness and meretriciousness. The house, fortunately, is generally insignificant in mass compared with the farm buildings. From across the valley it is not suspected. Only as you pass the gate does the terrible truth dawn. They who could instinctively handle masses and heroically exclude irrelevancies when utility was their guide, indulge unblushingly in every extravagance, every superfluity, under the uncertain leadership of a purely aesthetic impulse. Obviously they experience pride and enjoyment in these depressing dwellings, merely acquiescing of necessity

in the buildings which attracted you from afar. The futility of their desperate efforts enforces the disquieting suspicion that their real achievements have been accidental.

Do we face a fundamental deficiency in artistic capacity in our people, or is it nothing more serious than a lack of education? I am little given to fatalistic beliefs in inherent racial incapacities. Yet even though the problem be reduced to one of education it is of appalling magnitude. It is nothing less than the furnishing of a whole people

HOUSE AT SARATOGA, CALIFORNIA
Julia Morgan, Architect

with a background. Who will estimate the number of generations required to create a background?

And will the countryside become like our cities in the meantime? For a vigorous prescription of background must be made for them as well. After all, such houses as are illustrated herewith are but oases in the flippancy of real estate speculation.

* * * *

For people who have traveled abroad it is the recollection of the countryside which embodies the characteristic national flavor. That is

to say, for people who have really traveled. Those who have only toured have but seen the cosmopolitan centers, and do not know them. The real traveler has drifted about unimportant places with a shameless leisure. When he hears "England" or "France," his mind goes back less to London and Paris than to half-timbered roadside farm houses and stone cottages in nameless villages.

In America, country architecture would probably already have disappeared, but for the influence of the cities. Urban dwellers have been the salvation of picturesqueness. American cities are by and large so depressingly monotonous that their more affluent inhabitants have sought relief in country houses.

There is nothing, however, about which country dwellers are so sensitive as living in the country. When they build houses they resent

HOUSE AT SARATOGA, CALIFORNIA
Julia Morgan, Architect

any suspected slight or aspersion; personal pride and aspiration exact houses unmistakably urban. City dwellers may have board and batten and rough plaster and accumulations of pent house roofs if they desire them. They have seen their fathers and grandfathers do all these things without so much as pretending that they were designing. When they pay an architect they pay for "class."

I once read an appeal from a person who urged the foundation of a Society for the Preservation of the Natural Order of Things. The Society was to bend its efforts and influence toward the suppression of strawberries in January, and analogous artificial anomalies which pervert the course of nature and induce an over-sophisticated discontent. If the Society has ever been launched it might consider including in its program the question of city houses in the country. The accompanying problem I reserve, for I like to do country houses in the city myself. It seems to be the only place where they can be done.

Most people admit enthusiastically that a house should express personality, but few stop to consider specifically the question, Whose?

Architects in general are perhaps too willing to believe it should be theirs. The matter is far from simple. Not all architects, of course —even successful ones—have a personality to express. But assuming one to be present, it is not the only one involved.

Probably all architects have been approached by ladies who produce just what they want drawn on note paper, and require only that it be drawn up. Ladies, did I say? Of course gentlemen do the same thing, only on lined tablet paper. An architect's first reaction in such a situation is often rebellion, a confirmed desire to "put over" something absolutely different. Yet after all, an owner lives in his house, and the architect is generally no further concerned than as to his reputation. Sometimes the client's scheme represents no conviction, nothing more definite than an inability to conceive another way. In other cases it embodies, however imperfectly or elusively, a desire for some definite feature or character. The architect must be a psychologist who can penetrate to the nucleus of the idea and assess its real value. Not all clients have personalities either, but those which exist have a claim to consideration. What few rights clients possess I believe should be scrupulously respected.

And conceivably the community may also put forward a personality for expression. But here we become involved in the vexed question of style and national styles. One client's taste can generally cause sufficient confusion for an architect, without going out of his way to embrace everybody's.

* * * *

Attractive Home in Burlingame

THE accompanying photographs of a house in Burlingame for Mr. J. R. McKinney, manager of the bonding department, San Francisco office, of the Fidelity and Casualty Company of New York, show how a small, inexpensive home may possess character and artistic features when designed by a reputable architect. The word "architect" suggests itself to the visitor of this home, and the fact is emphasized that the owner, with a moderate sum to spend, can well afford to employ competent service, being repaid many times by the higher resale value of the property, besides having the pleasure of living in a home that is "different."

Mr. Earle B. Bertz of San Francisco designed this English cottage type bungalow, and it has proved to be one of Burlingame's attractive small places.

* * *

The Reason for High Taxes

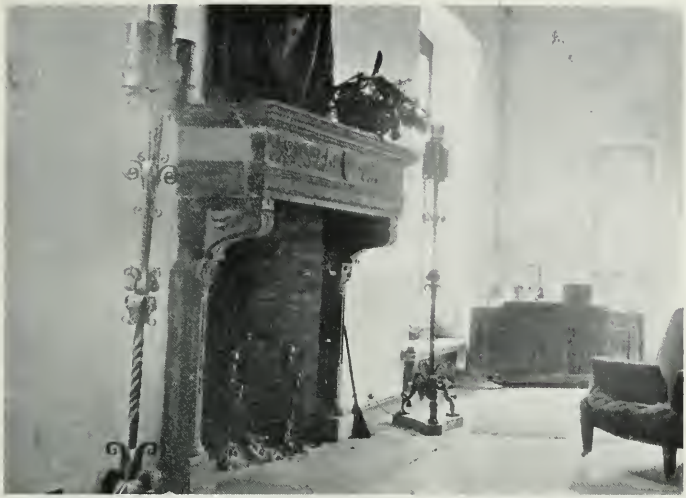
Forty years ago one person in forty was said to be supported directly or indirectly by Government, State or Municipal taxes. At present the ratio is said to be one in seven. At this rate of progress it will be only a few years before everyone will be supported by the State. Q.: Who will then pay the taxes?

* * *

American Institute of Architects Convention

The 56th Convention of the American Institute of Architects will be held in Washington, D. C., May 16th, 17th, and 18th.

HOUSE AT SARATOGA, CALIFORNIA
Julia Morgan, Architect

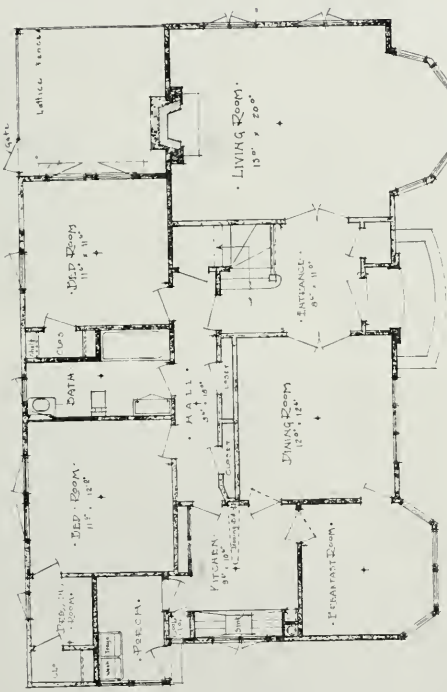


HOUSE AT SARATOGA, CALIFORNIA
Julia Morgan, Architect

HOUSE AT SARATOGA, CALIFORNIA
JULIA MORGAN ARCHITECT

HOUSE FOR MR. J. R. McKINNEY, BURLINGAME
Earl B. Bertz, Architect

HOUSE FOR MR. J. R. McKINNEY, BURLINGAME
EARL B. BERTZ ARCHITECT



PLAN, HOUSE FOR MR. J. R. McKINNEY, BURLINGAME
EARL B. BERTZ ARCHITECT

HOUSE FOR MR. ARTHUR P. DENTON, OAKLAND
SCHIRMER-BUGBEE COMPANY ARCHITECTS

HOUSE FOR MR. ARTHUR P. DENTON, OAKLAND
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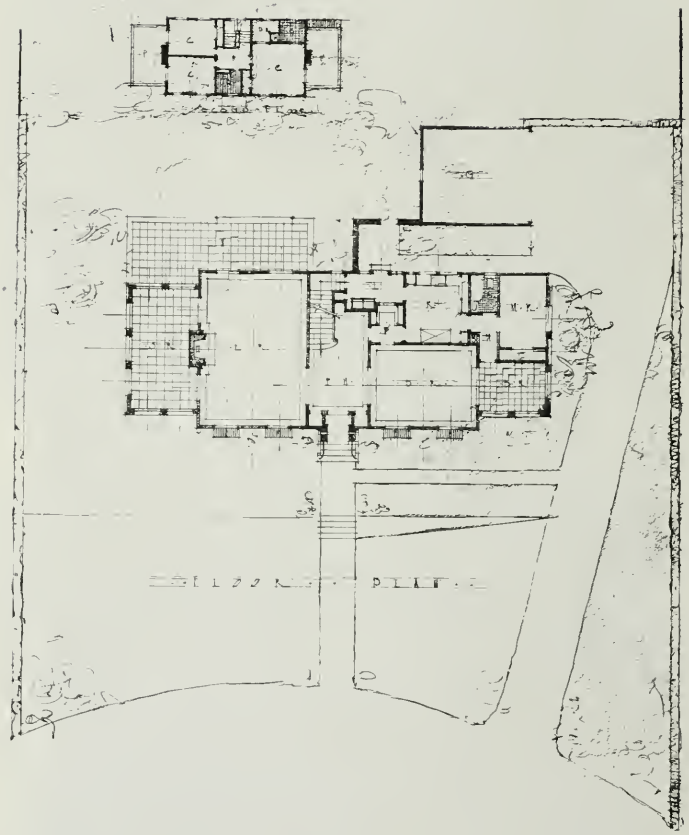

PLAN, HOUSE FOR MR. GEORGE W. BENNETT, PIEDMONT
SCHIRMER-BUGBEE COMPANY ARCHITECTS

HOUSE FOR MR. GEORGE W. BENNETT, PIEDMONT
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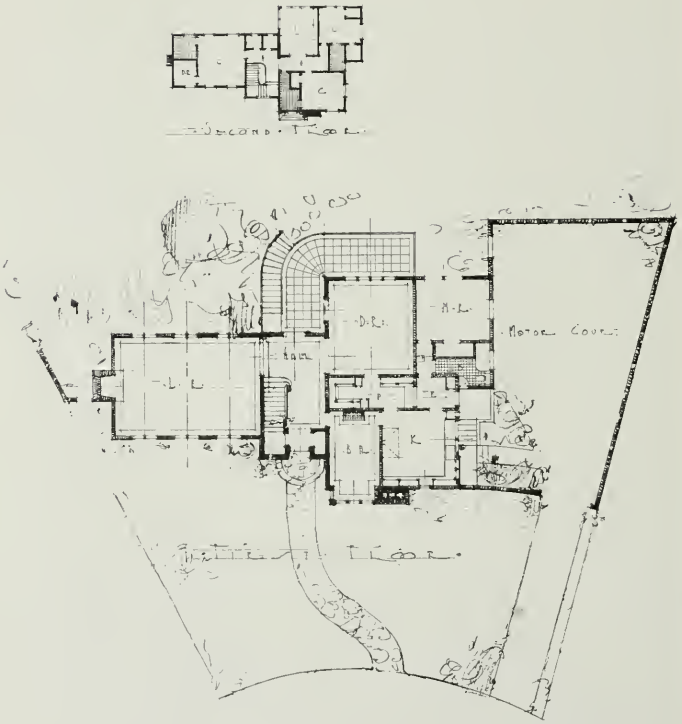
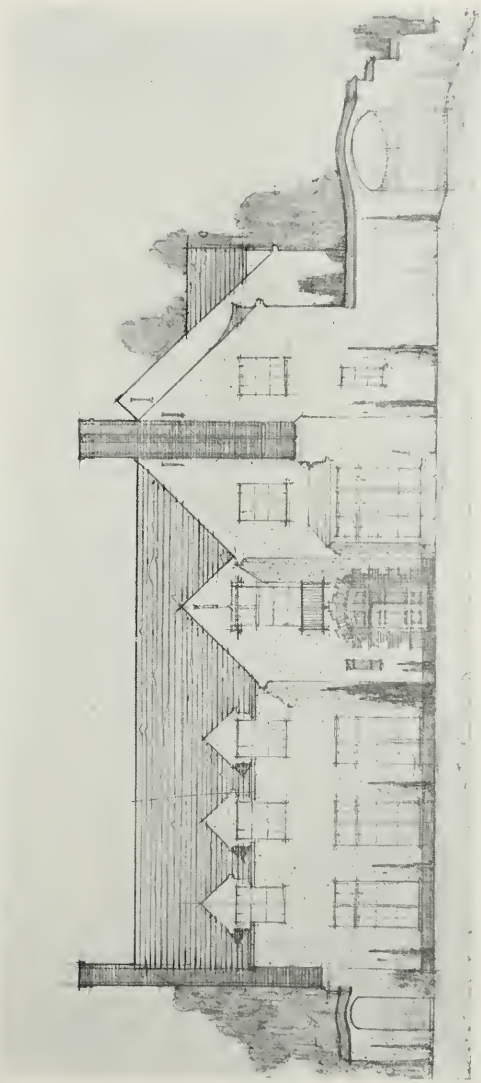


PLAN, HOUSE FOR MR. A. W. CLARK, PIEDMONT
SCHIRMER-BUGBEE COMPANY ARCHITECTS



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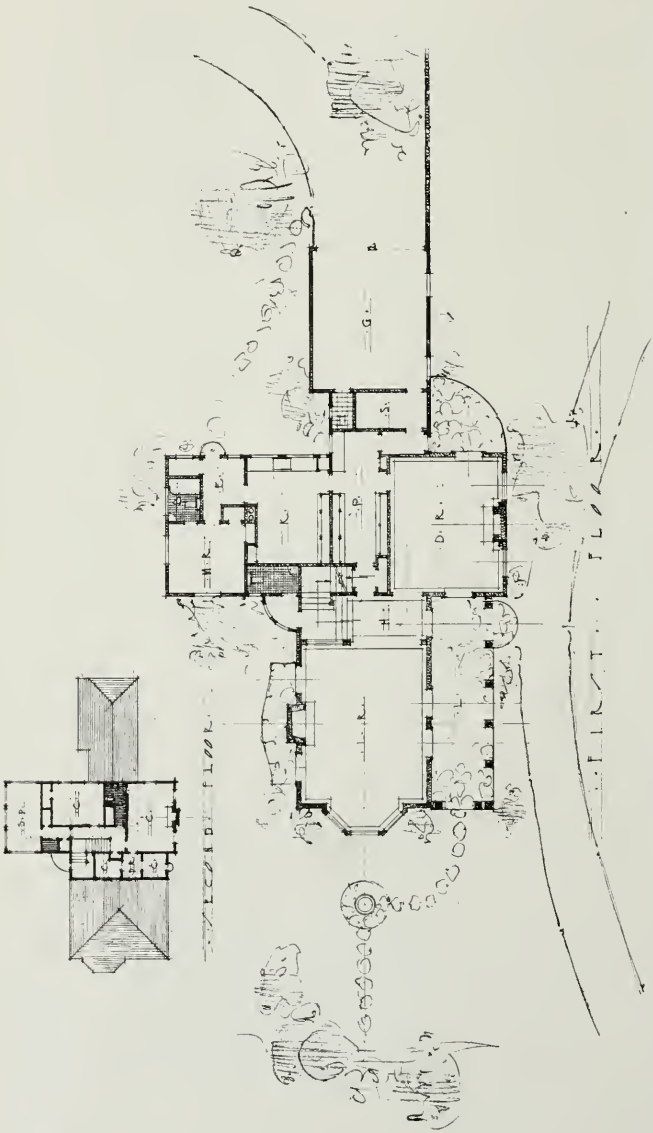
SCHIRMER-BUGBEE COMPANY ARCHITECTS



PLAN, HOUSE FOR MR. H. K. JACKSON, LOS GATOS
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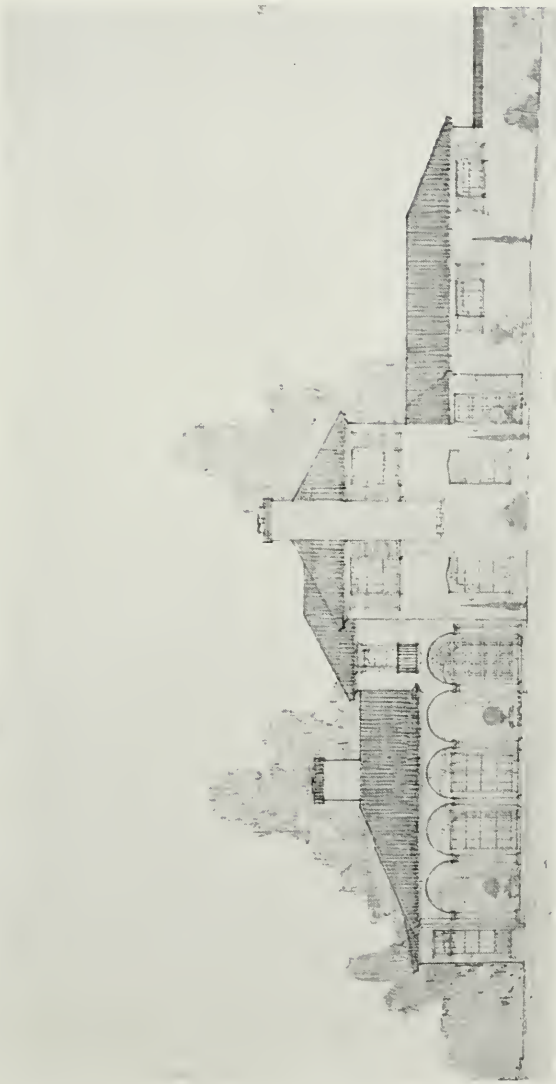

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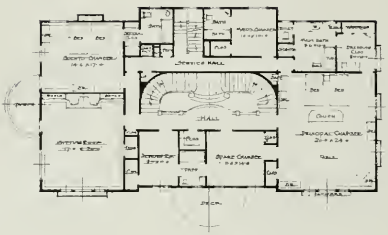
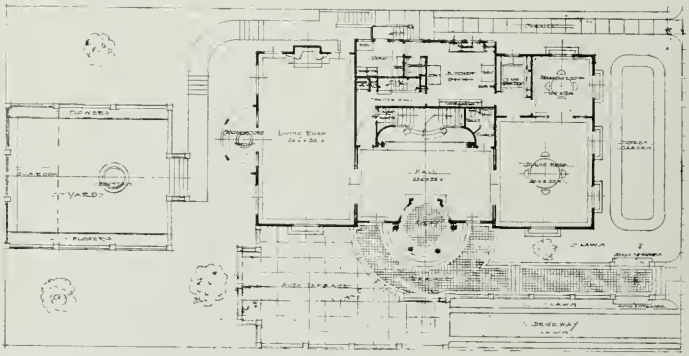


PLAN OF SECOND FLOOR



PLAN OF FIRST FLOOR, HOUSE FOR MR. O. M. HUETER
JOHN H. POWERS AND JOHN H. AHNDEN ARCHITECTS

HOUSE FOR MR. O. M. HUETER, SAN FRANCISCO
JOHN H. POWERS & JOHN H. AHNDEN ARCHITECTS

HOUSE FOR MR. O. M. HUETER, SAN FRANCISCO
JOHN H. POWERS & JOHN H. AHNDEN ARCHITECTS

HOUSE FOR MR. O. M. HUETER, SAN FRANCISCO
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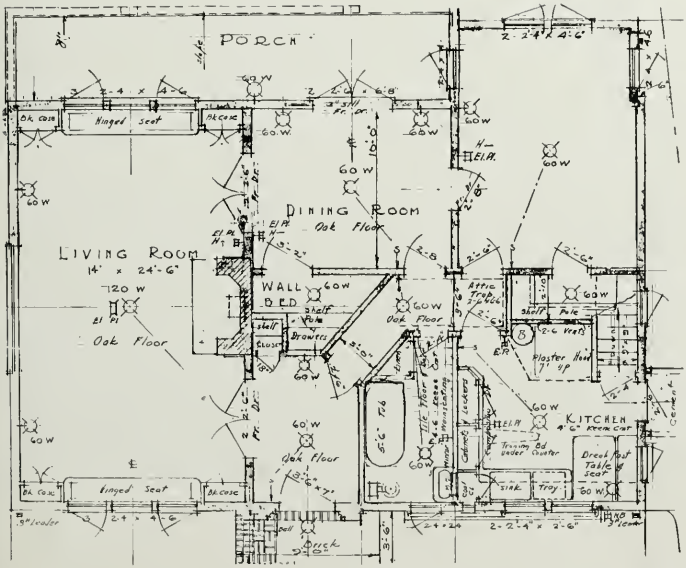
HOUSE FOR MR. H. C. CHURCHILL, OAKLAND
WILLIAMS & WASTELL ARCHITECTS

HOUSE FOR MRS. L. A. MILTON, OAKLAND
WILLIAMS & WASTELL ARCHITECTS

HOUSE FOR MR. W. L. PARKER, FRUITVALE
GUY L. BROWN ARCHITECT



HOUSE FOR MR. J. HOLROYD, BERKELEY
W. R. YELLAND ARCHITECT

HOUSE FOR MR. W. A. FOLGER, PIEDMONT
WILLIAMS & WASTELL, ARCHITECTS

(This house was altered from a building built for a garage)

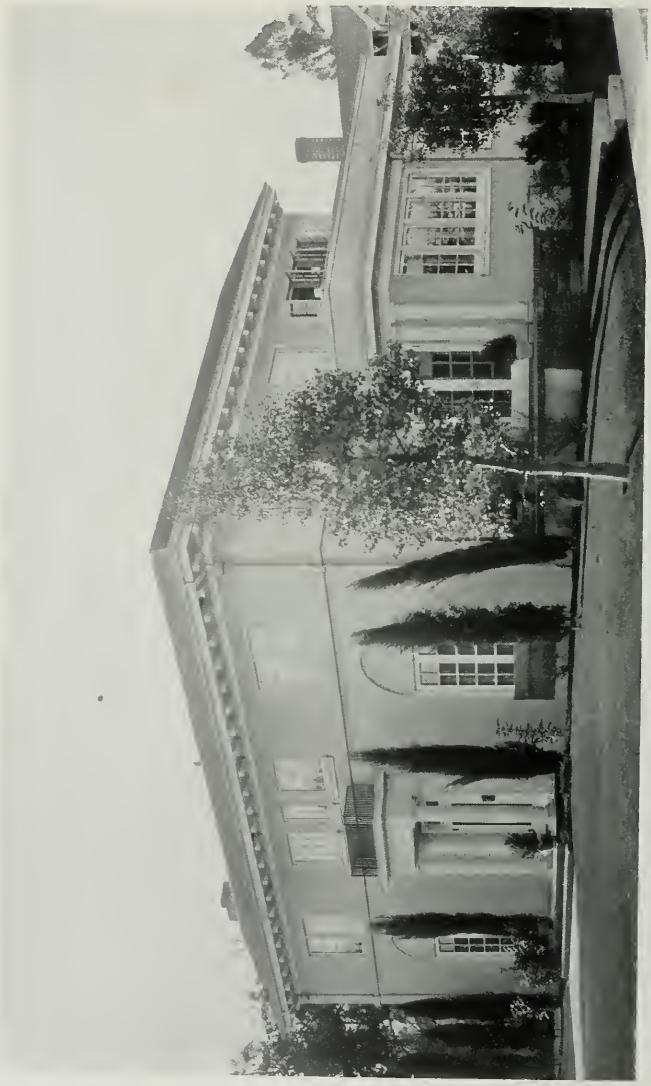
HOUSE FOR MR. WILLIAM McDUFFIE, BERKELEY
HENRY H. GUTTERSON ARCHITECT

HOUSE FOR MR. WILLIAM McDUFFIE, BERKELEY
HENRY H. GUTTERSON ARCHITECT

HOUSE IN BAY VIEW PLACE, BERKELEY
HENRY H. GUTTERSON ARCHITECT

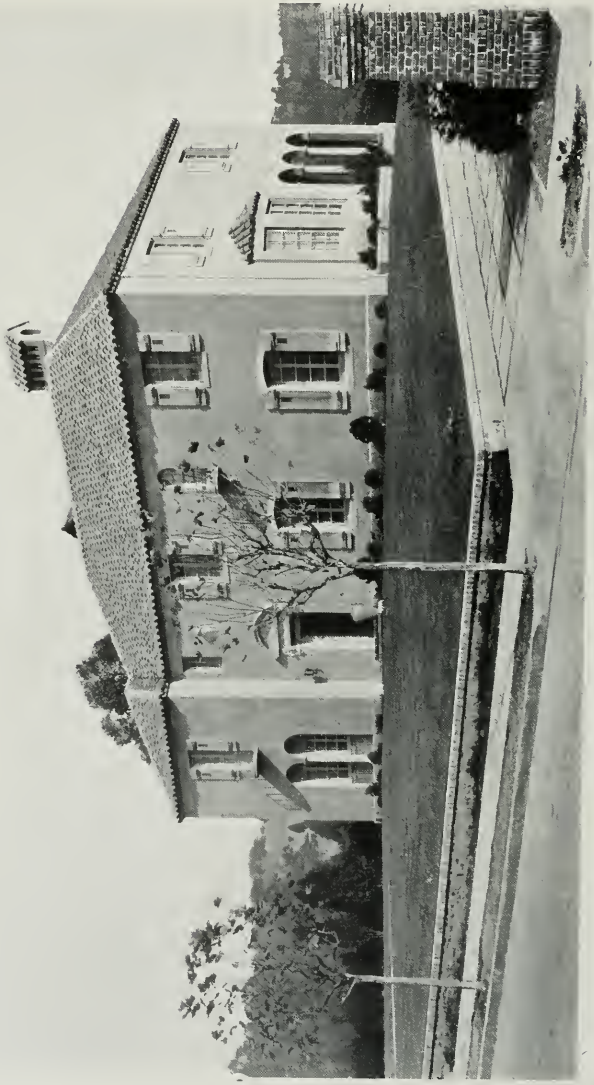
HOUSE FOR MR. WILLIAM McDUFFIE, BERKELEY
HENRY H. GUTTERSON ARCHITECT

HOUSE FOR MR. J. J. TYNAN, SAN FRANCISCO
LOUIS M. UPTON ARCHITECT



HOUSE FOR MR. E. ALLEN TEST, STOCKTON
MILLER & WARNECKE ARCHITECTS

HOUSE FOR MR. OLIVER, MT. DIABLO
MILLER & WARNECKE ARCHITECTS



HOUSE FOR MR. PERCY WALKER, PIEDMONT
GEORGE H. KELHAM ARCHITECT

HOUSE FOR MISS G. GARDNER, PALO ALTO
Wolfe & Higgins, Architects

Tile Roofs

By W. O. RAIGUEL

WHEN our forefathers first began to build permanent structures for their habitation or worship, their most difficult problem was a roof which would adequately protect them from the elements and have the same lasting quality as their walls. Wood and thatch were light and easily worked, but subject to rapid decay and frequent destruction by fire. Stone was too heavy and too difficult to handle.

Very early in our history they had discovered the imperishable qualities of burned clay, and it was an easy step to duplicate in it the forms of bark or split bamboo and evolve the burned clay roofing tile which has come down to us through the centuries unchanged in its fundamental characteristics.

Like all other building materials, it was entirely a hand-made product, difficult to transport and consequently used only in the immediate vicinity of its source. As the clays and the traditions of manufacture differed in each locality, so the tile itself took on slightly different form and color. Some clays would permit larger shapes than others. The color and density depended on the clay at hand and the available fuel and degree of heat which they could obtain. Uniformity of color and shape were impossible, and we have no reason to think they were sought for or would have been welcomed. All the arts and crafts were intensely individualistic, and remained so until the coming of the mechanical age, when the use of power-driven machinery made quantity production possible.

HOUSE FOR MR. P. J. WALKER, PIEDMONT
GEORGE W. KELHAM ARCHITECT

HOUSE FOR MR. P. J. WALKER, PIEDMONT
GEORGE W. KELHAM ARCHITECT

RESIDENCE OF MR. J. HENRY MEYER, MENLO PARK
BAKEWELL AND BROWN ARCHITECTS

HOUSE FOR MR. FRANK SCHWABACHER, HILLSBOROUGH
HOWARD AND WHITE ARCHITECTS

The Victorian era set up new standards. Mathematical exactness of form and color became symbols of perfection, and the materials of common use lost the charm and beauty of human imperfection. New and horrible forms were invented, miracles of cheapness and standardization making their appeal to the mind rather than to the heart. In the last few years the pendulum has been swinging back, and manufacturers are now producing in quantity roof tiles of burned clay having a wide kiln variation in color, which, in conjunction with an irregular

HOUSE FOR S. A. BORN COMPANY
El Camino Real, Burlingame

laying, completely eliminates the old oilcloth pattern of the roofs of the last century.

Heretofore the progression of art has marched with civilization from East to West until it reached the shore of the Pacific, from which it is now rolling back on itself. It was in California, with its traditions of old Mission roofs and its courageous and progressive architects, that this reversion in tile roofs began, and from California it is rapidly spreading over the East.

To the home builder a tile roof means a permanent, unchanging and fireproof protection, its first cost its last, the color which he chose remaining undimmed by the years. Instead of a source of constant

worry, his roof is something he can forget. And how many owners of a perishable roof after ten years would not joyfully pay double the first cost, if necessary, in exchange for freedom from leaks and repairs?

In color, burned clay seems to retain its sympathy with mother earth and take its place easily and naturally in Nature's setting, its tone at once contrasting and blending with its surroundings. It has the artist's touch of sincerity, is never forced or discordant, and just naturally "belongs."

HOUSE FOR MR. CARL H. BEAL, SAN MATEO
Charles K. Branner, Architect

In form the types of roof tile commonly used in California are essentially human in scale, and with comparatively slight variation in dimensions play their part on buildings widely different in size and character. The shadows of the troughs and butts serve to blend the colors, and when the laying is irregular to destroy any formality of pattern.

Much of the domestic architecture of California is of the Mediterranean type, with simple plaster walls on which the delicately serrated shadows of the eave tiles accentuate the beauty of the plain surfaces and give an ever-changing frieze to the sunlit walls.

There is perhaps no other single element of architecture which lends so much charm to the landscape as a beautiful tile roof, nestling amongst the verdure or outlined against the blue of the sky; and there

RESIDENCE FOR MRS. E. B. BREEDEN, HILLSBOROUGH
Bakewell & Brown, Architects

HOUSE FOR MR. A. SWINNERTON, BURLINGAME
Weeks & Day, Architects

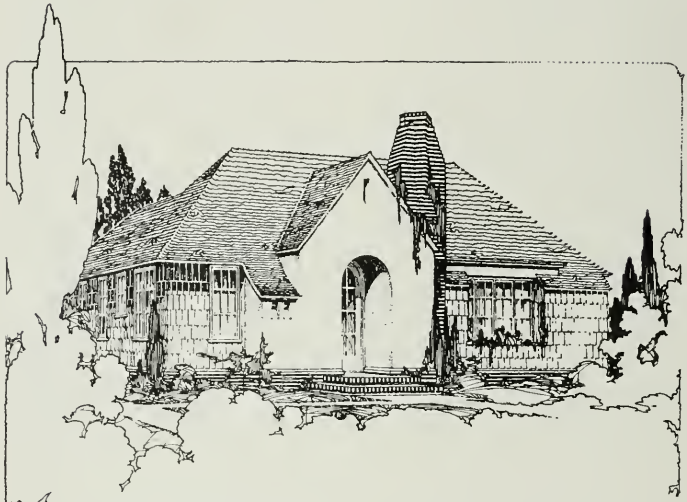
are few buildings whose beauty is not materially enhanced thereby, whether it be the modest country home, the more formal urban palace, or a towering skyscraper.

International Competition for Government Palace in Montevideo, Uruguay

THE Pan-American Union has received the rules governing the proposed international competition for providing plans for the Municipal Palace to be erected in Montevideo, the capital of Uruguay. The Palace will not only contain the offices of the municipal government, but those of the national government as well. Competitors are requested to utilize, if possible, the foundation already existing upon the site, which has a dimension of 337 by 505 feet. It is the intention to have the building constructed principally of stone, quarried in Uruguay. The architects are asked to provide for a bell tower as a part of the general plans.

The competition will close August 8th of this year. The winner will receive a prize of 10,000 pesos (the peso is equal to $.85 United States gold). The second prize will be 5000 pesos, and the third 3000 pesos. The jury of awards has been authorized to divide an additional 5000 pesos among other competitors, should their work merit this recognition. The erection of the Palace will be in charge of the successful architect, who will receive 3 per cent of the total cost as additional compensation for this work. A plan has been provided for keeping secret the names of the competitors until after the awards have been made, and even then only the names of the prize-winners will be known to the jury and to the public.

Copies of the ground plan and full details may be obtained by addressing the Pan-American Union at Washington, D. C.



ERNEST IRVING FREESE · ARCHITECT
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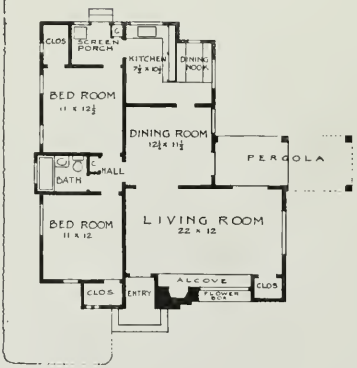
LOS ANGELES CAL.



The Big Idea in Home Design

By ERNEST IRVING FREESE, *Architect*

ONCE upon a time——

No, don't call me Aesop just because the commencement of this epistle sounds fabulous. Fables are antique—which same is the one and only appurtenance of fables that adheres to the particular and original IDEA of which I write. I've had other ideas—all of 'em original. But each of those others is another story. I allude to them merely to inform the reader that I'm a thinker. Contrary information may be readily obtained from extraneous sources. But it's unreliable.

Now, to get back. Once upon a time I became smitten with the big idea—the one idea that has roamed down the centuries and jostled the consciousness of dreamers since time began—the original antique idea, altruistic, beautiful, overpowering, vampish and treacherous—the idea of educating the pub——

Wait a minute——

I'm an architect, if you know what that means. But you don't. So I'll tell you what it means—to me: It means **three-dimensional thinking**, coupled with the ability to convert those three-dimensional thoughts, through the medium of two-dimensional drawings, into a beautiful, coherent and structural language, of which the alphabet is timber, masonry and steel.

A dreamer, first and always—vagabond, draftsman, artist, mathematician—all of these, to me, are component parts of the term **architect**.

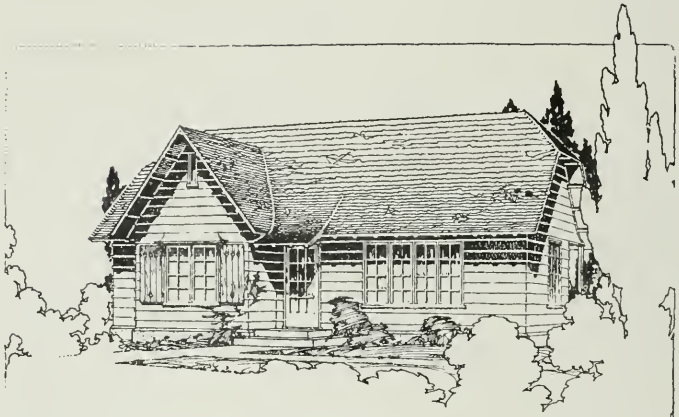
To the far places of the world I've been. And the man who said the world has four corners was either an invalid or a liar. In awe have I contemplated the ruined architecture of Athens and Egypt. In horror have I gazed upon the ruinous architecture of San Francisco and Los Angeles. I have eaten and slept in the thatched and pargetted cottages of England, the red-capped, white-walled houses of Spain, the flat-roofed, iron-barred 'dobes of Old Mexico, the grass-and-palm huts of Malay, the cardboard boxes of Japan, and in the steerage of countless ships. I've drawn everything from patent office diagrams up to and including some wages. I've painted nature in all her greenery, and some towns I've done in red. Algebra and the theory of moments are my playmates. Proof of these things is uncalled for—I freely admit them.

Dreamer, wanderer, draftsman, artist, mathematician. So, withal, the beautiful, antique, original idea seized upon me. And in the end, as you shall see, 'twas just plain everyday bread-and-butter mathematics, the most despised member of the Architect's staff, that finally overpowered the one big overpowering idea. Yep! The differential and integral calculus of how to make a living put the jinx to flight.

And the jinx—the **idea**—was this:

Why could not the planning and designing of small houses be handled by a competent architect? Why should not well-planned, well-designed, architecturally good small houses be possible? Why should not the "wee hoose" be good to look upon, instead of looking as if it were built in Los Angeles from plans made in a real estate office, a saw mill, or by De-Jinx Wrecking Company? Can not the public be educated?

"Ah!" says I, as I cuddled and caressed the big idea, "it shall be done. I'll educate the public. I'll give 'em something good. And I'll give it to 'em **cheap**. I'll turn out plans so that every dinner-pail carrier who



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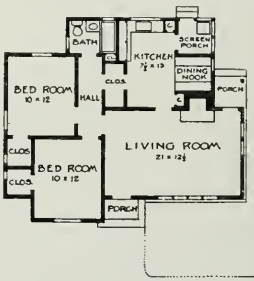

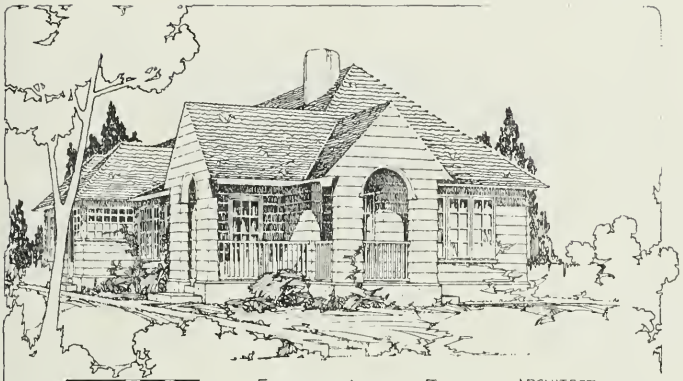

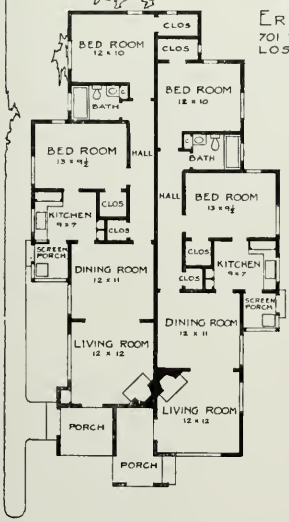

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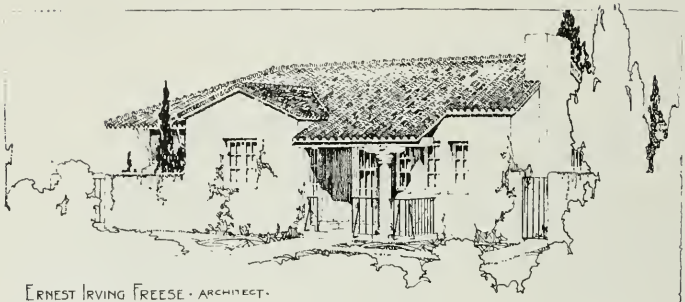

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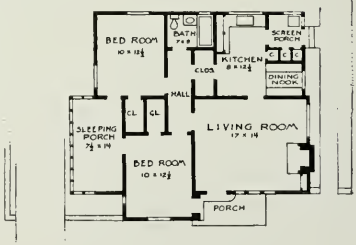

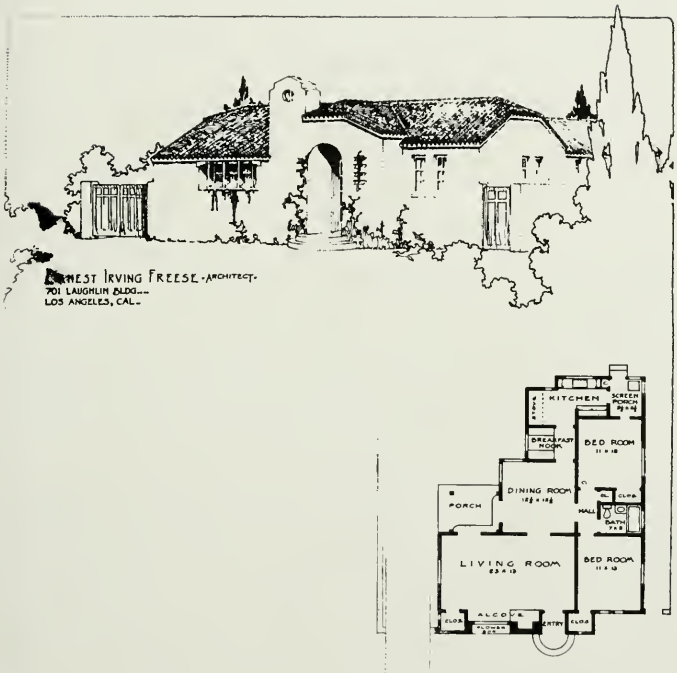
ERNEST IRVING FREESE-ARCHITECT-
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LOS ANGELES, CAL.
KITCHEN
SCREEN PORCH
BREAKFAST NOOK
BED ROOM
DINING ROOM
PORCH
HALL
CLOS.
BATH
LIVING ROOM
BED ROOM
ALCOVE
CLOS.
ENTRY
CLOS.

cherishes a hankering for a 'wee hoose' on a wee income will make a path to my office door."

'Twas **the big idea!**

It planted itself in fertile soil. It took root in my mind, and grew. Like the vampire it was, it fed upon other thoughts, sapping them, leaving them lifeless. It ramified and spread itself over my consciousness to such an extent that I lost a six per cent warehouse job because I was too busy turning out house plans at so much a set!

"Ethics be d——d," gleefully quoted I. "Ten times one-half of one per cent equals five per cent, doesn't it? If I sell ten copies of each stock plan I make the Institute's minimum, don't I?"

So, as I say, I "fell" for the big idea. I went to work enthused. Not enthused about the riches I was to acquire, but enthused because I saw a way to get good architecture to a class of people who neither appreciated it nor were willing to pay for it. I would "put one over on 'em." But——

I didn't do it.

I turned out ten distinct plans, ranging from three to six rooms each. They're well-planned and well designed. They're as economical as it is possible to make them under those conditions. They're architecturally good and complete in every detail. All are simple little "homey" houses.

At the finish of perhaps the sixth design, the gripping fingers of the **big idea** became perceptibly weak. At the finish of the tenth the clutch was gone. I paused to "figger." Mathematics came to the rescue. And the original antique idea—altruistic, beautiful, overpowering, vampish and treacherous—the big idea of **educating the public**—went on its meandering way, to roam on down the centuries, to jostle the consciousness of other dreamers until time becomes no more.

Those ten sets of plans had cost me $900, almost exactly. And, so enthusiastic had been my insanity, I allowed other work to suffer, and some to die—at the hands of others! However, hope is not dead. I have hope of some day, in the far-distant future, handing out over the counter the **thirty-sixth** set of plans. Then I shall be satisfied. I shall have collected exactly $900—an even break.

But, meanwhile, I spend perhaps three hours a day talking to prospective buyers—**shoppers**, rather. "Well," they say, "we'll look around, and if we don't see something we like better we'll come back. I didn't think blueprints were so expensive!"

Ye gods, have pity on their shriveled souls! Expensive! Twenty-five dollars for that which cost ninety to produce.

They seldom come back. They usually find something they like better—for fifteen dollars! thus affecting a saving of ten dollars on the cost of a four-or-five-thousand-dollar house. **That** is what education does.

I still have the ten little "homey" plans. They are my pets. I take them out periodically, fondle and caress them, glorying in every detail. Then I wax wroth:

"Not ethics—but the public—be d——d," I softly whisper. "Let 'em build and live in the horrible things they call houses. Let 'em look upon their ugly, jazzy, sickly, pink-and-blue monstrosities till they die. That's punishment enough.

As for me, I'm going back to work on things worth while. Mebbe I'll go to farmin'. Or start a peanut stand.

But, anyhow—I aint **never, never** goin' to dream again 'bout educatin 'the public.

Architecture for Women

THE honor and glory of being the first Queensland girl to qualify as an architect at the Sydney University has fallen to Miss Lorna Lukin, a daughter of Mr. Justice Lukin of Brisbane.

Miss Lukin received her degree in 1922, along with three other women graduates.

The reason why this profession has not hitherto been extensively exploited by women is that it does not offer anything wonderful in the way of inducements.

Articled pupils to architecture are warned that they must not, at the present time, look for adequate remuneration for their services, but take up the profession for the love of the art, for oftentimes after serving five years of apprenticeship and devoting every spare minute to study, they only obtain three pounds or four pounds per week as salary.

An ordinary typist commands this after two or three years of service with lesser hours and no evening study, and as a woman is nothing if not practical, one can understand her tardiness to become an architect.

Again, a world of prejudice has to be overcome, not only from the general public, which distrusts innovations and likes to follow along the well-worn rut of custom, but also from many "brother" architects who seem to fear the rivalry of women's natural aptitude for this work, which has been demonstrated in the results of technical colleges and university examinations; but there should be nothing to fear from narrow and ill-founded prejudices and petty jealousies, for wherever woman has taken up a cause or a profession she has invariably acquitted herself with distinction and can do so again.—Building, Sydney, Australia.

* * *

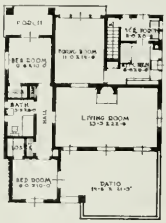
Build a Bookcase in Every Home

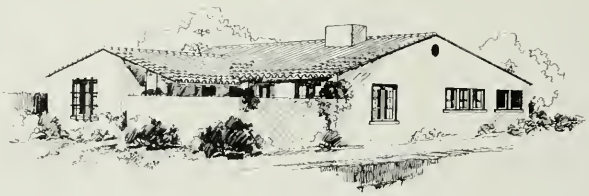
WHEN you consider what books have done for the human race; how the veriest baby turns the leaf of its pictured alphabet book with pleasure; how children and their elders enter through books into another world of joy and gorgeous fancy; how geniuses and scholars have put into them their very life, and the learned and the ignorant take out of them the light that illumines the goal of the human race; when you consider what books have meant to you, in the way of help and increased knowledge, make up your mind that in every home you build there goes in at least one bookcase. Build it in and build it spaciously. The room may be only a small one, as rooms go, but through books it will reach to the edge of the universe and the roof of heaven, and join the far future with the present and the distant past. —American Builder.

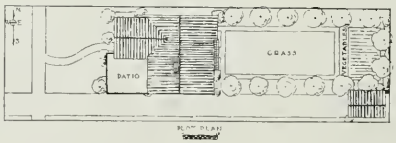
* * *

The Artistic Touch

The one characteristic in which the French lead all of the rest of the world is in the artistic touch which they impart to everything which they do. The French woman has the knack of arranging her clothes in just the right way as becomes her style. The French man trims his Van Dyke beards to just the proper profile. In France the subway stations, traffic booths, comfort stations, and everything else are designed with the idea of beauty in it and not as mere makeshifts. Everything is arranged in the most charming manner. We Americans need more of this artistic touch. We are too matter-of-fact.—Washington State Architect.

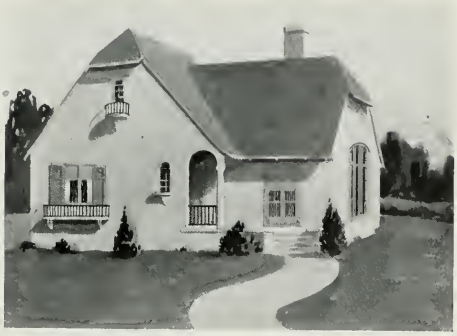






DESIGN · FOR · A · SMALL · HOUSE : TO · COST · $5000

AWARDED MENTION IN SMALL HOUSE COMPETITION, LOS ANGELES ARCHITECTURAL CLUB



COTTAGE OF HOLLOW TILE AND STUCCO

How Shall the Small Home Be Built?*

By FREDERICK JENNINGS

HOW shall the small home be built?" **might** be answered by saying: "In as convenient and artistic a manner as possible." But this would not be a complete answer.

The average American home probably excels those of any other country in the convenience of its arrangement and utilities. The shining bathroom, the spotless laundry, the perfectly appointed kitchen, the multitude of electrical devices to make housework easier,—these are typical of the American home, even of the small home.

The homes designed in recent years have shown generally a trend toward the higher standards of beauty and artistry. Contrasted with the dwellings erected twenty years or more ago, their attractiveness is particularly marked. Much can be done further in this direction, and will be done, as competent architects interest themselves more and more in the design of small houses.

The psychological effect upon adults, and even to a greater extent upon children, of living in a dwelling expressive of beauty and harmony cannot be over-estimated.

So one answer to the question "How shall the small home be built?" is "To be convenient, harmonious and beautiful."

But there is another phase to the question,—a phase of small home building to which not enough attention is paid,—a neglected phase which is of serious consequence to the individual and to the community.

Construction of small homes, particularly upon the Pacific Coast, is often of an extremely impermanent and unsound type. Everything is sacrificed to appearance. Structural quality, which alone can give durability, is often totally disregarded.

Unseasoned and second grade lumber, thin, insufficient building paper are covered over with stucco, and the unwary purchaser buys a home, not realizing that he is purchasing trouble.

Very frequently the money to purchase a home is secured only after a long period of thrift and deprivation, and the home is paid for in installments and carries a heavy mortgage.

Is it not, therefore, viciously wrong that the purchaser should be sold a home that cannot, from its very nature, give permanent satisfac-

* Illustrations courtesy of California Brick Company, San Francisco.

BUNGALOW OF HOLLOW TILE AND FACE BRICK
Walter Stellberg, Architect

HOUSE OF HOLLOW TILE AND STUCCO
George O'Brien, Architect

FLOOR PLAN

LEFT—BUNGALOW OF HOLLOW TILE AND STUCCO
Fred Haskell, Architect

RIGHT—BUNGALOW OF HOLLOW TILE AND STUCCO
W. C. Marshall, Builder

FLOOR PLAN

A PUEBLO TYPE OF BUNGALOW

tion; a home that will demand each year greater and greater expenditures for repairs and upkeep; that will depreciate more and more rapidly, so that even before it is paid for, its value will have greatly diminished?

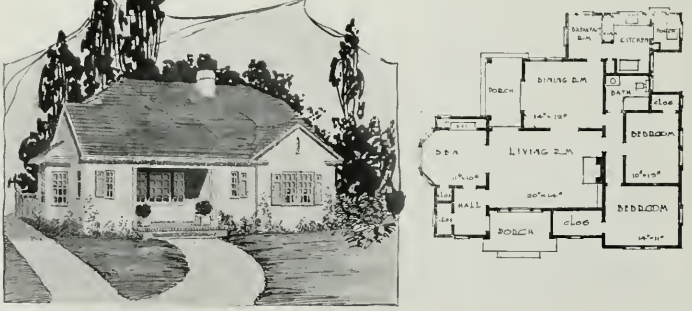
A home-owning citizenship is a great asset to every community and to the country at large. Such a citizenship is stable; is less influenced by radicalism, is less inclined to drift about from place to place, is harder working, thriftier, and more dependable.

Is it not very unwise to exploit the home owner by means of flimsily built houses and thus to discourage and embitter him?

We see in every city large districts once dwelt in by prosperous people and now given over to cheap rooming houses, ugly shops, and to squalor. Such districts are an eye-sore and an economic loss to the city, since property values in them invariably tumble.

What causes such districts? Dilapidated houses,—homes which, once new and attractive, are now decayed and squalid. It is harder to "bring back" such districts, although very frequently they lie within the very heart of the city, than to establish new residence sections in the suburbs. Conflagrations, once started, sweep, unchecked, through such construction,—this lesson, learned at such a cost in 1906, should not be forgotten.

As we have already stated, impermanent construction is much more a feature of Pacific Coast communities than it is of the middle



BUNGALOW OF HOLLOW TILE AND STUCCO

HOLLOW TILE AND STUCCO HOME

Western and Eastern communities. This is true for two reasons. The more rigorous weather in the East and Middle West demands solid construction. Second, until comparatively recent years the West has had a great abundance of cheap lumber, and permanent building materials were scarce and high in price.

Although cheap lumber is a thing of the past, and permanent building materials have been reduced in cost so that now it costs little or no more to build a brick or hollow tile house than it does to construct a first-class frame house, still the habit of putting up impermanent, inflammable construction persists in the West.

However, there is a hopeful tendency on the part of the far-seeing architects and contractors to encourage the building of brick and hollow tile homes, a tendency which grows more marked every year, and this means a great deal to the Western communities.

It means that the Pacific Coast towns and cities of tomorrow will not merely have large districts of beautiful homes, but that these homes will be safe from conflagration and safe from the onslaught of time and weather. Then, too, they will offer not merely greater economy to their owners and occupants, but greater comfort. The modern Pacific Coast family desires a degree of heat such as the family of twenty years ago, or more, did not find necessary. Furnaces are becoming the rule rather than the exception. A house built of brick or hollow tile is easier to keep warm than a frame house, and therefore the saving on fuel is pronounced.

Hollow tile, faced with stucco or with face brick, offers a type of construction which is at once unexcelled in permanence and yet within the reach of the average home builder. The hollow tile home resists fire, time and weather. Its upkeep and repair costs are negligible. Exterior repairing is unnecessary. The dead air spaces in the wall of hollow tile give an unequalled insulation against the heat of summer, the cold of winter, moisture and even sound. A hollow tile house requires no interior lathing or furring; the plaster is applied directly against the tile. Such construction is strong and sound for many years.

How shall the small home be built? The answer is, not only to be beautiful and convenient, but to be permanent, so that its purchaser will find it an investment rather than an expense.

Hollow tile, covered with stucco, lends itself admirably to the rambling type of structure that is becoming so popular in Western home architecture. It is also adaptable to the two-story type of dwelling.

THE
Architect and Engineer
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Founded 1905 by E. M. C. WHITNEY
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Published Monthly in the Interest of the Architects, Structural Engineers, Contractors and the Allied Trades of the Pacific Coast by The Architect and Engineer, Inc.

PUBLICATION OFFICE:
627-629 Foxcroft Building, San Francisco
Telephone Douglas 1828

The publishers disclaim any responsibility for statements made in the advertisements of this magazine.

Terms of Subscription
(Including postage) to all parts of the United States, $2.50 per annum; to Canada 75c additional; to all Foreign points $1 additional

Vol. LXXIII APRIL, 1923 No. 1

BICENTENARY OF SIR CHRISTOPHER WREN

Last month in England there was celebrated the second centenary of the death of England's greatest and one of the world's most famous architects, Sir Christopher Wren.

Wren was not only a consummate architect and engineer, but an astronomer, mathematician and scientist of the first rank. He was an intimate friend of Sir Isaac Newton, and contributed a good deal to the literature of the theory of gravitation. He wrote the charter, and was one time president of the most famous of all scientific associations, the Royal Society of London.

When that city was burned in 1666 Wren made a noble plan for the city's rebuilding, but no part of it was ever carried out except the rebuilding of many churches, and in particular St. Paul's Cathedral. Here, under the great dome, Wren was buried, and on a small marble tablet was written the celebrated lines ending—

Lector, si monumentum requiris, circumspice.

"Reader, if you seek a monument, look around."

HILLSIDE PARKING STRIPS FOR SAN FRANCISCO STREETS

How many citizens of San Francisco and travelers have surveyed our steepest streets and observed the masses of pavement almost totally unused because much travel over them is impracticable or impossible? How few motor-cars traverse Mason, Taylor or Jones between Pine and California in the course of a week; and streets like Green above Taylor and Chestnut below Larkin are so steep as to utterly prohibit the use of vehicles. Yet the cobbles extend the full width of the thoroughfares, which are as broad as the heavy traffic arteries below, although a narrow paved lane bordering either curb, as on Stockton between Bush and Pine is all that is needed and would provide space for an ample planting strip in the center.

The topography of San Francisco is such that we are provided with many street vistas, in the heart of the business district, the Civic Center and some other sections, which are terminated by worthy architectural effects or by inviting natural scenery; but in most cases, especially when looking up long straight streets, the impression is one of monotony because almost never relieved by green of either parking strips or shade trees. We need only to think of European cities and recall those of our Eastern United States, or even our own towns of Sacramento and Stockton, to realize in just what we lack and how we may improve.

In order gradually but surely to convert San Francisco into a beautiful city, these steep, lifeless gray streets, on the slopes of its noble heights, such as Nob, Russian and Telegraph Hills, should be transformed into living green strips of permanent parklike beauty, planted with hardy evergreen shrubs and evergreen ground covers or creepers. The shrubs should not mature over five or six feet in height, which would insure a clear line of vision over them for the motorist. To prove serviceable and appear well throughout the year, they must be planned for a minimum cost of maintenance, and shrubs are not only superior to lawns for this purpose but they are evolutionary, with cycles of colorbloom, and if wisely pruned are capable of presenting a better and more individual appearance both to the adjacent residents and to those who scan them from a distance, than would lawns or transitory flower plantings.

Parking strips incorporated in the center, along the sides or at the terminals of streets proper are usually created at the expense of the owners of abutting property, after which they also pay the cost of maintenance. When these strips or spots of green present a pleasing prospect, it is evidence of neighborhood and civic pride, and we may hope that in certain instances the Park Commission can assume the responsibility of the upkeep. The Bureau of Engineering of the City of San Francisco deserves warm commendation for the alert practical effort and moral support which it is giving to work of this character. It is to be hoped that devotion to and respect for our city together with vision and action will bring these charming park areas into a gratifying existence.

EMERSON KNIGHT, Landscape Architect.

BUILD BETTER HOMES AND REDUCE FIRE LOSSES

In its campaign for better homes, the National Lumber Manufacturers Association has recently published a booklet containing much valuable data intended to emphasize the need of more efficient building construction, with special regard for the fire resistive features of a home.

It is a shameful indictment against the good name of this country, the lumber manufacturers say, that during the past fourteen-years period fire losses were 28.1 per cent of the value of new building construction. In 1920, although an abnormal amount of building was done, the fire losses were 23.5 per cent of the value of new buildings. In other words, there has been destroyed, annually, the equivalent of practically one-quarter of the amount expended for new construction. Fire losses in the United States in 1921 were more than half a billion dollars. Fire loss adjustments made by insurance companies in the United States and Canada during the past fourteen years amounted to $3,410-752,600. The average yearly loss was $243,625,200.

The loss for 1920 reached the staggering total of $330,853,925, an amount which, if devoted to the erection of homes costing $4000 each, would build enough houses to line both sides of a street stretching from New York to Chicago. Startling as these losses are, they do not tell the whole story. They represent only the actual insurance adjustments made. They do not take into account losses due to the fact that buildings are seldom insured for more than 80 per cent of their full value, nor do they include losses not covered by insurance. The insurance adjustments made probably do not exceed 70 per cent of actual fire losses, including both insured and uninsured.

In explaining the purpose of this booklet, which is the first of a

series on the subject of "Fire Prevention," the National Lumber Manufacturers' Association states that it hopes to bring before architects, home builders, owners, and occupants the truth that each is his brother's keeper; that no individual can live to himself alone; that all have a responsibility to the community at large. Personal liability for preventable fires is a practical application of that responsibility.

Other chapters to be published by the Association under copyright will be as follows: "Fire-Stopping in Dwelling Construction," being a description of various simple and inexpensive methods by which the spread of fire may be checked and confined to the space in which it originates; "Chimneys, Flues, and Fireplaces"; and "Household Heating and Lighting Hazards."

ARCHITECT ENTITLED TO FEE

(From Southwest Contractor and Builder)

An architect is just as much entitled to his fee when it is due as anyone else who performs a service. Now and then, however, someone gets the notion that the architect should wait for his money until the work which he has in charge is completed and everyone else on the job has been paid. This applies to the county superintendent of schools and the county treasurer of Monterey county who refused to authorize payment of an order drawn by the trustees of the Salinas Union High School District for $7000 as the first installment of a $20,000 fee which Architect Ralph Wyckoff was to receive for superintending the construction of a union high school building at Salinas, for which $400,000 bonds had been voted. When his pay was not forthcoming the architect went to court. The superintendent of schools and treasurer of the county set up a defense for their refusal to authorize the warrant the claim that there was not sufficient money in the treasury to cover the warrant when it was drawn and that moreover the building had not been completed or accepted. All of these objections were overruled by the appellate court, which held the architect was entitled to his money and that it was the duty of the county authorities to authorize payment from one fund or another.

New State Housing Act

Two important changes in the Burnett State housing act asked by the California Lumbermen's Association were conceded by the committee on health and quarantine of the senate which reported the Burnett bill back to the senate with a recommendation for its passage. These changes were drafted by a sub-committee. One of them is a revision of the definition of the word "approved" as used in the act in connection with materials and appliances that may be used in construction. As revised this definition in Sec. 10 is as follows:

"Approved" means whatever material, appliance, appurtenance, or other matter meets the requirements and approval of the department charged with the enforcement of this act; provided, however, that should any material, appliance, appurtenance, or other matter not meet the requirements of, and bears the approval of the then in that event any material, appliance, appurtenance or other matter which conforms to the requirements of, and ears the approval of the "National Board of Fire Underwriters," or the "Underwriters' Laboratories, Inc.," shall be deemed approved.

Another change qualifies the specified dimensions of materials that may be used in construction of buildings, set forth in Sec. 61, as follows:

All dimensions of lumber mentioned in this Act are substantially the dimensions thereof when manufactured from the log subject, however, to customary slight variations. It is understood that these dimensions when the lumber is used in a building may be reduced by the processes of seasoning, of sizing and of planing and that the dimensions mentioned in this Act if so reduced by said processes to the customary commercial sizes thereof shall be nevertheless considered as fulfilling the requirements of this Act.

State May Abolish Architectural Division

In line with his policy of saving the State of California "needless expenditures," Governor Richardson will probably further reduce the State budget by ordering the abolition of the Division of Architecture of the State Department of Public Works, according to advices from Sacramento.

It appears to be the Governor's plan to do away entirely with the Division of Architecture, appointing a State Architect, whose duties will be the supervision of all State construction work.

Thinks Magazine Splendid

In renewing his subscription to The Architect and Engineer, Mr. R. A. Johnson, 151 Royal Court, Portland, Oregon, writes: "Your magazine is splendid. Would like to see more moderate-sized Spanish homes illustrated, also houses of California type."

ARCHITECTURAL DESIGNER WANTED

Marston, Van Pelt & Maybury, Architects, 25 South Euclid avenue, Pasadena, have a permanent position to offer to an experienced architectural designer, desiring to locate in Southern California.

PUBLIC LIBRARY

With the Architects

Building Reports and Personal Mention of Interest to the Profession

Architects' Chapter Meeting

The Rapid Blue Print Company was host to the Southern California Chapter, American Institute of Architects, at its monthly meeting Tuesday evening, March 13th. The meeting was held in the companys' new building at 818 Santee street, Los Angeles. The architects were shown the operation of the newest devices for making blue prints by artificial light and various processes of photographing architectural drawings. Following the inspection of the plant, an excellent dinner was served.

A short business session was held, at which Mr. Henry F. Withey reported the recommendations of the executive committee on a number of bills which have been introduced in the legislature and are to be acted upon at this session. Mr. Edgar H. Cline reported on a proposed bill to regulate school house construction.

The program of entertainment was in charge of Henry Davis, who acted as chairman. Prof. Ira O. Baker of the University of Illinois gave a talk urging the architects and engineers to take a more prominent part in civic affairs.

Architect Offers Prize

Architect John J. Donovan of Oakland has given students who are majoring architecture in Eugene, Ore., an opportunity to win $125 in cash prizes. The award will be made to the student designing the best perspective for a general cosmopolitan or inclusive high school to accommodate at least 2000 students. This will mean the designing of a number of buildings and the laying out of forty acres of grounds.

Architect Moves

Architect H. P. Merritt has moved to 601 Mechanics Institute building, San Francisco, and is now associated with Wm. F. Gunnison. Both have considerable new work on the boards.

The Grave of Albert Pissis

A subscriber writes to ask if any reader of "The Architect and Engineer" can give information as to the burial place of San Francisco's well-known architect, the late Mr. Albert Pissis.

To Design New York Hospital

Architect Lewis P. Hobart of San Francisco has been commissioned to prepare plans for a $1,000,000 hospital in New York City.

To Study European Architecture

American students of architecture will be interested in the opportunity offered to them by the Institute of International Education to study the development of architecture in Europe next summer under Professor Albert C. Phelps, professor of architecture in the College of Architecture, Cornell University. Professor Phelps will be a member of the faculty of the art students' tour, which has been organized for the summer of 1923 under the sponsorship of the institute. Other members will be Miss Edith R. Abbott of the Metropolitan Museum of Art, New York City, as a lecturer on the history and appreciation of painting and sculpture; Mr. John C. Tidden of Rice Institute, Texas, as instructor in painting and lecturer on the fine arts from the standpoint of the creative artist; and others whose names will be announced later.

The group will sail from New York on June 30th, 1923, on the Cunarder Saxonia.

Complete information may be secured from the Institute of International Education or from Irwin Smith, 30 East 42nd street, New York City.

Montana Architects

A Montana chapter of the American Institute of Architects was recently formed with the following officers: President, Mr. George H. Carsley, Helena; vice-president, Mr. George H. Shanley, Great Falls; secretary and treasurer, Mr. W. R. Plew, Bozeman.

The meeting of the Montana architects was the semi-annual gathering of the Association of Architects. An interesting address on "Montana Marble" was delivered by Mr. D. P. Mumbrue of the Surveyor-General's office. At the close of the meeting the following officers were elected for the year: President, Mr. W. R. Plew of Bozeman; vice-president, Mr. Frank Bossout of Havre; secretary and treasurer, Mr. R. C. Hugenin of Helena; directors, Messrs. W. R. Plew, Bozeman, Ole Bakke, Missoula and Walter Arnold, Butte. The summer meeting of both organizations will be held in Missoula in September.

$200,000 Apartment House

Plans have been completed by Architect C. A. Meussdorffer for a $200,000 apartment house for Dr. C. R. Bricca, to be built on Green street, near Jones, San Francisco.

Personal

Messrs. A. C. Zimmerman, architect and engineer, and Rudolph Meier, architect, have moved their offices from the San Fernando building to larger quarters in the H. W. Hellman building, Los Angeles.

* * *

Architect Elmer Grey has moved his office from the Wright and Callender building to 622-23 Bank of Italy building, Los Angeles.

* * *

Mr. Richard Sachse has resigned as chief engineer of the California State Railroad Commission to fix the valuation of the Pacific Electric and the Los Angeles railway properties in Los Angeles in the proposed unification plan.

* * *

Architects A. S. Nibecker, Jr., and W. L. Risley have moved their offices from 421 to 625 Washington building, Los Angeles.

* * *

Mr. Lester S. Ready, assistant chief engineer of the California State Railroad Commission, has been appointed chief engineer to succeed Mr. Richard Sachse, resigned. He has been connected with the commission for 10 years.

* * *

Architect Arthur W. Angel has moved his offices from the H. W. Hellman building to 2136 East First street, Los Angeles.

* * *

Architects John C. Austin and Frederick Ashley have opened a branch office at 410 Hollywood Security Bank building, Cahuenga Ave. and Hollywood Blvd., Los Angeles.

* * *

Architects Phillips & Needham have moved their offices from the Grosse building to suite 307, Ferguson building, 307 S. Hill street, Los Angeles.

* * *

Architect W. Douglas Lee has moved his office from 610 Grosse building to suite 400-01-02 Sun building, Seventh and Hill streets, Los Angeles.

* * *

Architect Ervin T. Smith of Alhambra has moved from 431 Almansor street to Room 2, Unger building, 224½ W. Main street, Alhambra. Mr. Smith will be pleased to receive manufacturers' catalogs and trade literature at his new address.

* * *

Mr. Lloyd Rally, formerly of San Francisco, and for the past few years with Architect Myron Hunt of Los Angeles, has opened on office for the practice of architecture in the Wright & Callender building, that city.

Modesto Elks Building

Plans have been prepared by Architect James A. Hoose of Modesto for a four-story brick store and lodge building for the Modesto Elks, estimated to cost $85,000.

Architect Wins Suit

Mr. J. G. Force, Superintendent of Schools of Monterey County, and Mr. James Taylor, Treasurer of Monterey County, were ordered by the District Court of Appeal to authorize payment of an order for $7000 drawn by the trustees of Salinas Union High School District, to Architect Ralph Wyckoff, of Wyckoff & White, San Jose, who designed the new Salinas high school building.

Mr. Wyckoff was given judgment in his suit in the lower court, and this was affirmed by the recent Appellate Court ruling. He claimed that he had made an agreement with the trustees by which he was to design and superintend the construction of the new building for $20,000, payable in installments as the work progressed.

Santa Barbara Architects Busy

Architects Soule, Murphy & Hastings, 1206 State street, Santa Barbara, have been instructed to proceed with plans for the new St. Vincent's Orphanage building. It will be three-stories with two two-story wings. The estimated cost is between $300,000 and $350,000. In addition to the main building there will be a power house, laundry, home for employes, and a school building.

Architects Soule, Hastings & Murphy, are also completing plans for two new $200,000 elementary school buildings. One will be the new Franklin school and the other the Washington-Riviera school. Bids will be called for shortly.

Architects Sue for Fees

Messrs. Edgar A. Mathews and Horace G. Simpson, architects, have filed suit in the Superior Court against the West Coast Life Insurance Company for $6000, alleged to be due for services. According to the complaint, the insurance company engaged the architects to prepare plans for a two-story addition to the company's building at Second and Market streets, San Francisco, known as the Santa Fe building. After the plans were drawn, it is charged the company employed other architects.

Exchange to Build

The board of directors of the San Francisco Builders Exchange are considering the question of a location for a new Exchange building. The thought is a location and building suitable for all needs and of a style and character as should be had by the largest industry in the city.

Building for Architecture

The Board of Regents of the University of Michigan have requested the State Legislature to appropriate $400,000 for a building to house a School of Architecture.

Winners in Hospital Competition

Messrs. Butler & Rodman of New York City received the first prize in the international competition recently conducted by the Modern Hospital magazine for the plans of a small general hospital. Three awards of $500, $300 and $200 and two honorable mentions were made.

Second and third places in the contest were won respectively by Mr. John Roth of Atascadero, Cal., and Mr. Ernst Hoedtke of Cambridge, Mass. Selection was made from fifty-one sets of plans submitted by hospital architects of the United States, Canada, and England, judgment being on the basis of economy in construction and operation, integrity of designs, health values and flexibility.

Messrs. Cervin & Horn, hospital architects of Rock Island, Ill., were given first honorable mention in the competition, the other honorable mention going to Mr. Lemuel Cross Dillenbach of the School of Architecture, University of Illinois.

Hotels To Be Taller

Removal of the restrictions on the height of fireproof hotel buildings will probably result in the construction of a number of hotels in Los Angeles and San Francisco which would not otherwise be erected. The hotel law limited the height of a fireproof building on a street 60 feet wide to 90 feet and on a street 80 feet wide to 120 feet. With this restriction eliminated, the Rosslyn hotel annex, now being erected at the southwest corner of Fifth and Main streets, Los Angeles, may be carried to the full height of 150 feet allowed by the city charter. It is understood the enactment of the Hart bill will result in an addition planned for the St. Francis hotel at San Francisco going ahead next year.

Theatre and Business Buildings

Architects Reid Bros. are completing plans for a Class A theatre to be built on Union street, between Buchanan and Webster streets, San Francisco, for Samuel H. Levin; also for several business buildings for the same owner. A contract for the structural steel for the theatre has been let to the Golden Gate Iron Works. Improvements are estimated to cost in the neighborhood of $200,000.

Fresno Skyscraper

Messrs. Trewhitt & Shields, Rowell building, Fresno, will supervise the erection of a fifteen-story Class A bank and office building, at Mariposa and J streets, for the Fidelity branch of the Pacific Southwest Trust and Savings Bank, Los Angeles. The estimated cost is $1,000,000. Plans are bing drawn by R. F. Felchlin & Co., Bank of Italy building, Fresno.

Bakewell & Brown Win Competition

Architects Bakewell & Brown, of San Francisco, won the competition for a club house at Lakeside, San Francisco, for the Olympic Club. There were nine competitors, all members of the Club. The winning design was a very pleasing composition in the Spanish type. The building is to cost $200,000. The jury which made the award was composed of Architect George W. Kelham, Architect Clarence Ward and Messrs. Paul Fay, and Paul E. Denville and Wm. H. Humphreys, the latter, president of the Club. All the drawings were placed on exhibition at the St. Francis Hotel, and much interest was shown by members of the profession as well as the public in the display.

Theater Building

Architect G. Albert Lansburgh, Los Angeles and San Francisco, has completed plans for a three-story theater building to be erected north of the Hollywood Hotel, for a group of Southern California capitalists and theatrical men who have organized a stock company. The building will seat 1500 persons and will cost $750,000.

To Practice Architecture

The State Board of Architecture (Southern District) has granted certificates for the practice of architecture to the following: Mr. Ralph O. Beattie, Culver City; Mr. Alexander R. Brandner, 1802 Cherokee avenue, and Mr. Arthur J. Williams, 201 Ong building, South Pasadena.

Granted Certificates

At a meeting of the State Board of Architecture held March 27th, the following were granted certificates to practice architecture in California:

Mr. Edward C. McManus, 771-19th street, Oakland.

Mr. Lawrence A. Kruse, 251 Kearny street, San Francisco.

Mr. Edwin D. Martin, 5 N. La Salle street, Chicago.

Seven-Story Office Building

Plans are being prepared by Architect C. W. McCall, of Oakland, for a seven-story Class A store and office building to be erected at 14th and Franklin streets, Oakland, and to be leased to the Alameda County Title Insurance Company. It is estimated the structure will cost $500,000. The Dinwiddie Company of San Francisco will be in charge of construction.

To Design New Court House and Jail

Architect W. H. Weeks has been appointed architect by the Supervisors of Placer County to design a new county hospital, Hall of Records, jail, etc., to be built in Auburn, under a special bond issue of $315,000.

FULLER & GOEPP BUILDING, OAKLAND
M. J. RIST ARCHITECT

New Oakland Plant of Fuller & Goepp

IT is gratifying to note a tendency to build better industrial buildings in San Francisco and the Bay Region, a recent example being the new glass jobbers' plant of Messrs. Fuller & Goepp, at Eleventh and Jackson streets, Oakland. In striking contrast to the gloomy, unattractive walls of many older industrial plants in the Bay region, the new Fuller & Goepp home is a well-balanced design in reinforced concrete with dignified facades and glass on both frontages as well as the other walls, affording an ever-present reminder of the line of business carried on by the occupying concern.

Architect M. J. Rist, who is associated with Carl Werner, in designing the building apparently believed and profited in the modern maxim, "the plant should fit the business and not the business fit into the plant." Ample provision has been made for future expansion of the several departments, and numerous labor- and time-saving devices have been installed to add to the efficiency of the factory. Sufficient time was taken in preparing the plans to work out numerous details of this character. The health of the employee has been safeguarded, not only through the introduction of modern labor-saving conveniences, but in the creation of an atmosphere of sunlight, good ventilation and structural beauty. The solving of these problems so satisfactorily must be attributed largely to the close co-operation and understanding of the architect and members of the firm.

The architect was not hampered in his problem for future expansion by a too limited floor space. Only a percentage of the available factory site was utilized in the present structure, leaving ample ground for additions, by the simple expedient of laterally extending the floor space of each department. Steel sash was liberally utilized to insure the maximum of light, particularly in the beveling, mirror and art glass departments, where daylight is an important factor. The quality of the finished product depends largely on the selection of materials and the facility of observation by the artists and artisans engaged.

The studios where the artists execute their original designs for church and general leaded art glass requirements, under the direction and inspiration of Hugo Schmitz, the celebrated designer, with his wide European experience, have been provided with the appropriate elements of quiet, adequate spaciousness, and a true artistic atmosphere of beauty and orderliness.

The business of the concern demands large stocks of heavy and expensive plate and window glass in storage, which shall be immediately available for wholesale and retail use, and for these needs a series of readily accessible racks have been constructed to house every size and type of glass, from the largest plate required by the trade down to the small light. Numerous platforms also have been arranged to accommodate carloads of every size and variety of window glass, together with an endless assortment of wire, obscure, opalescent glass, and the recently perfected white glass composition known by the trade name of Sani-Onyx.

Every part of the storage space is readily reached by elevator and crane, so as to eliminate the usual time and labor losses in carriage. The heart of the "Glass House" is the cutting room, where stock sizes are cut to specification and selections made as required. Lofty, spacious and well-lighted quarters have been provided for this important service, adequately equipped with hoisting devices and enormous cushioned cutting tables.

Adequate delivery and transportation facilities have always been a characteristic of the Fuller & Goepp concern, and the design of the Oakland plant affords ample means for the entry and loading of its various motor trucks with glass orders.

Artistically arranged show rooms have been fitted up for demonstrating the numerous trade uses of Sani-Onyx in store and dwelling fixtures, and the more modern types of show cases manufactured by the concern.

The spacious public and private offices occupy the front of the structure, and here the same care has been shown in the design so as to insure the maximum of efficiency, light and convenience. Even the desks were designed and built to harmonize with the soft y r e y color scheme of the offices.

Adjacent to the lower tier of offices an attractive reception room has been provided for customers. The plant is a harmonious entity, each element serving its utilitarian end, and all possessing a personality of efficiency, co-operation and beauty. The architect solved his problem in the best lights of his profession.

Architect Wythe Busy

New work in the office of Architect W. J. Wythe of Oakland, includes a three-story church, parsonage and an apartment building to be erected at 14th and Belcher streets, San Francisco, for the Norwegian Danish Mission, estimated to cost $50,000; a residence and garage for Mr. James H. Cobbledick, to cost $12,000; a Methodist Church at Orland, to cost $25,000; and a frame gymnasium at Corning, to cost $20,000.

EXECUTIVE OFFICE, FULLER & GOEPP BUILDING, OAKLAND

ART GLASS STUDIO, FULLER & GOEPP BUILDING, OAKLAND

LEADED GLASS MANUFACTORY, FULLER & GOEPP BUILDING, OAKLAND

STORAGE AND CUTTING ROOM, FULLER & GOEPP BUILDING, OAKLAND

With the Engineers

Why Most Engineers Fail As Contractors

By DANIEL J. HAUER
Consulting Engineer, Baltimore, Md.

"WHY is it," asked an engineering friend of a successful contractor, "that few engineers succeed as contractors?"

"Well," said the contractor, "an engineer should, from his training and experience, make an ideal contractor and succeed in making money from every job, but unfortunately this has not been so; in fact, so many engineers have failed as contractors that many predict, upon hearing that an engineer has started into contracting, that he will fail.

"To view a contractors' work from the position that an engineer holds, the job appears to be an easy one. There seems to be so much waste and mismanagement that any one with fair judgment could improve on the contractor's work If this is the case, why could he not handle the entire job to better advantage and make a greater profit than the contractor?"

There are a number of reasons why the engineer even of many years' experience fails as a contractor. It is hoped in the scope of this short article to mention some of these reasons and determine how an engineer wishing to become a contractor can fit himself so as to succeed.

In the principal essentials pertaining to a construction job the engineer is likely to plan better. The engineer generally fails in the numerous details. This is true of estimating on work as well as in carrying on the job.

On a concrete job, especially in highway construction, an engineer from his engineering training will take into consideration the cost of his materials and the labor of mixing and placing, yet he may ignore such important things as the handling and storing of cement, an item that may amount to five or ten cents a square yard, including the cost of caring for the cement bags, the cost of providing water for the mixing and curing of the cement, and the daily work of getting ready for mixing and placing and cleaning up at the end of the day's work. Then again in steam shovel work the cost of the coal may be figured in the estimate, whereas the cost of providing water may be ignored; yet many experienced contractors know that for light excavation the cost of water may exceed that of coal.

As in the items mentioned, so it is with many others, ignoring enough costs to more than eat up the estimated profits. The same is true of the overhead items. Engineers have done more than contractors to call attention to the fact that overhead charges are of the utmost importance, and in managing work these must be considered and recorded and due allowance made in estimating them. On the other hand, engineers have not realized that these allowances must be made flexible; that the same percentages cannot be used for the different classes of work and on different jobs. Then, too, the overhead charge for plant, freight or transportation to and from the job may be a large figure, and if it cannot be included with other items, it must be accounted for in the plant charges. It is evident also that hand work calls for a small plant job, say less than five per cent, while the modern plant for a concrete road will require an investment of more than 10 per cent. Therefore, to use an arbitrary plant charge of five per cent may only lead to trouble.

In other details of estimating and managing work the engineer is inclined to be more theoretical than practical. Thus an engineer, who had started into contracting on work I was supervising as an engineer, stated that he was making money in operating a wheel scraper gang, saying each team was moving an average of a given yardage per day. The writer pointed out to him that if his statement was correct each team was walking forty-four miles in a ten-hour day. At first this was not surprising to the engineer contractor and his two partners, who were likewise engineers. It was finally shown to them from actual records kept by the writer, that the teams were traveling from eleven to twelve miles per day and moving only about one-fourth the yardage they estimated. No doubt they had estimated the joy in the same theoretical manner, and it was little wonder that they failed before the job was finished.

A team can walk at a given rate and keep it up during a day, but an estimate based upon the speed of a horse leads to erroneous deductions, for there is lost team time on both ends of the trip and

many mishaps to occur that reduce the mileage traveled. Theoretical capacity of vehicles and machines are likewise misleading. The contractor is paid place measurement for excavation while the materials in the vehicles must be measured as loose—this alone can mean a difference of from thirty to fifty per cent.

An engineer also fails in many cases, due to a lack of experience in handling men. He is apt to employ too many men —which means excessive payrolls. He frequently has too large an office force, and too many assistants, many of whom are assigned to useless and needless tasks. Only recently the writer heard a contractor, who had visited New York state he had seen a job being carried on by a prominent engineer who has lately gone to contracting, say, "You could tell it was an engineer's job by the number of cadets on it." In handling and managing workmen the engineer is liable to err to one extreme or the other. He may be too kind and familiar with men, or he may consider men like tools or machine to be worked to the utmost, so that he will soon be classed as a grinder.

There are other things and many of them that count against an engineer making a successful contractor, but one stands out prominently, namely, the egotism of most engineers. Few engineers can agree on any subject, even a mathematical formula, and each will hold that he is correct and the other fellow is wrong. Thus the average engineer in starting as a contractor, being versed in construction, is likely to think that he knows all that is worth knowing, and that few if any contractors and engineers can instruct them in anything pertaining to construction or contract work. It is said, "Pride goeth before a fall," and this has been true of many engineers entering the contracting field. They were too proud to learn of others, and in the end they lost pride as well as their money.

An engineer, or anyone else, to be successful at contracting, must pocket his pride and be humble enough to be willing to learn from others. He should maintain his leadership among men, and have confidence in himself and his ability, but he should remember that it is possible to learn from even the humblest workmen. The writer learned more about loosening dirt with a pick from an Italian laborer, who could scarcely speak English, than from any other source.

The engineer must remember that he may know engineering, but he knows little if anything regarding contracting; his engineering knowledge should prove an asset, but he must go to the school of experience to fit himself for his new work. To some extent he must forget his engineering functions. He is no longer the supervisor or inspector of the construction; this he must leave to others, for he is now the builder, the one to carry out the plans and designs of the engineer. He is no longer solely interested in shops being true to grade lines and cross sections, or that specifications are literally lived up to in every case. It is to his interest, and it is right and proper that good work be done, but he cannot be both engineer and contractor.

He can learn more regarding contracting by associating himself as a partner with a contractor who has had some years of successful experience. Later he can go into business by himself if he so desires. If it is not possible or practical to do this, then he has the alternates of entering the employment of a contractor as an engineer, superintendent, or in some other executive position. Or he can associate himself with some competent foreman or contractor's superintendent, and as partners engage in contracting.

Under such conditions he can learn many details and become accustomed to his new duties, and learn much as to handling men. At the same time he will give much in the way of knowledge and theory to his associates and also can teach them how to keep many records and the value of such things.

If an engineer decides that he wishes to engage in contracting, for a year or more while he is still acting as an engineer, he can keep cost records of work he supervises. Such records should be in great detail and can be checked as to work done by cross-section quantities and surveys. Many of these records can be kept by assistants and inspectors, and thus can be made to show lost time of men, machines, and teams, as well as the actual working time. Thus, even if all the overhead costs cannot be obtained, the records will show field costs and give valuable details as to man and machine units.

During the same time he can do much by way of observation as to many other details of operating machines and handling men. For such things notes should be kept, for memory often plays strange tricks with all of us.

Unfortunately, colleges have not yet established courses for those wishing to study contracting and become constructors. The writer has already mapped out such courses, and the day will soon come when colleges will adopt them. Until this is done, men must train themselves in other ways.

Fortunately, there is now some literature on contracting, so that it is possible for any one desiring to study the subject by means of books to do so.

Meeting of Pacific Coast Members, American Society of Agricultural Engineers

The field of agricultural engineering was made greater when about 75 men interested in its extension to include the Western part of the United States met in San Francisco recently to discuss plans for the further development of the activities of the society. After a very instructive program, followed by a banquet, a committee of six was elected from those present to make definite plans to place the agricultural engineering interests of the West in closer touch with the parent society, which for years has been holding its annual meeting in Chicago. At a meeting of this committee, held Thursday, March 22nd, at the College of Agriculture, Berkeley, the aims of the Western members of the Society were outlined as follows:

1. To place before the Eastern members through the various publications of the society the agricultural engineering problems of the West.

2. To give proper and due publicity to the activities of the society to the general public in order that the constructive benefits of the society be not confined merely to those who are now members.

3. To establish a program of fundamental research into the different phases of agricultural engineering, especially drainage, **farm buildings, materials, farmstead planning**, farm motors, electric power used for agricultural purposes, farm machinery, irrigation, pumping machinery, concrete, costs of changing raw land into improved farms, and methods of financing the above operations.

4. To investigate the rural community as a means through which all phases of agricultural engineering may most economically be utilized and to develop plans for the organization of communities on a sound business basis for co-operation in farm business.

5. To plan a professional meeting of the Society in Berkeley in 1923 and a national meeting of the entire society in San Francisco in 1924, where the results of these studies can be discussed, disseminated, and made of general utility.

A Premium on Incompetence

The low bid on a residence is $17,000. The next higher bid is $21,000; three other bids range up to $24,000. The low man cannot give bond, but the owner awards him the contract notwithstanding. The one-sided Mechanic's Lien law, as the owner knows, gives no standing to claims of dealers and subcontractor against the building, unless written notice has been served before delivery of material or service that lien will be filed if the claims are unpaid, and the owner has not refused acceptance of delivery under that condition. It is inconceivable that this owner should take a bid from a party who could not give bond, if the owner knew that HE would be liable for payment of all bills for material and service on the building in the event that the contractor did not pay them?

The further history of the project, of which I have been speaking, is that the contractor fell down on the job and the owner had to have the house completed under the architect's supervision. The contractor's work had been so poorly done that the completed house is considered in building circles a botch, and the owner knows it. Dealers and subcontractors who had unpaid bills against the contractor on account of this house had to compromise at 50 cents on the dollar, although the owner is wealthy. The lure of business had led them to take the same chance that the owner took, and they, too, became losers.

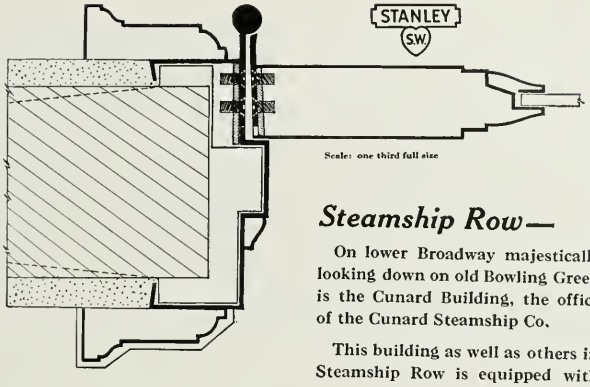
Here then are the fruits of a one-sided law: 1. A $4000 premium on incompetence and irresponsibility took the job away from a competent and a responsible contractor. 2. The owner has a botched house. 3. The dealers and subcontractors charge 50 per cent of their claims off to profit and loss. 4. Other owners have to carry this loss and other losses of the same character because of the larger margin of profit the losers must charge to absorb these losses. Should not all responsible building interests co-operate to end such wasteful, inequitable, senseless conditions of doing business and so bring nearer equitable uniformity in lien laws?—From an address delivered by Virgil Dibble, Columbia, South Carolina, before the National Association of Builders' Exchanges at Des Moines, Iowa, February 13th, 1923. —American Contractor.

Plans Large Development Work

The Pacific Gas and Electric Company is preparing to spend between seventeen and eighteen million dollars in further hydro-electric development on the Pit River, and for transmission to load centers of the resulting power.

The wonders of the Pit River region for purposes of power development have attracted public attention far and wide in recent years.

To the uninitiated, it would appear that with the large development already completed the company would have power to spare for some time to come. This, however, is not the case, and now comes the news that the company's board of directors has approved plans for the construction, without delay, of another large power plant in the system, to be known as Pit No. 3, and which in its electric generating equipment will represent, in round numbers, 100,000 horse-power of installed capacity. The beginning of this development will be marked by a diversion dam on the river at a point about 2½ miles below Peck's bridge, on the highway between Burney and Bartle, about twelve miles down stream from Pit No. 1 plant, which, as already recorded, is now in operation.



Scale: one third full size

Steamship Row—

On lower Broadway majestically looking down on old Bowling Green is the Cunard Building, the office of the Cunard Steamship Co.

This building as well as others in Steamship Row is equipped with

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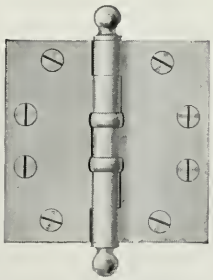


Stanley No. BB 171 4″ x 4″ Wrought Steel Template Ball Bearing Butts were used, three to each door.

Copyright 1923, The Stanley Works

Union Construction Company Enters Elevator Field

Announcement is made elsewhere in this issue of the entrance of the Union Construction Company in the field of building elevators. Their statement to this effect follows an arrangement with the General Electric Company for the utilization of the General Electric's new electric elevator equipment and they are prepared to install elevators of the latest and improved types to meet all modern building requirements.

The General Electric Company has made distinctive advances in the science of elevator motor and control for high speed elevators and has also developed a double motor in a single frame with control where it is wished to apply alternating current directly. Many installations of these new types have already been successfully made throughout the country.

The Union Construction Company is one of California's large industrial developments, with main offices in the Balfour building, San Francisco, and plant at the foot of 14th street, between the Key Route and Southern Pacific piers, Oakland.

The company had its inception in the partnership, dating from 1911, of Mr. Walter W. Johnson and Mr. Harry G. Peake, as designers and builders of gold dredgers and dredging equipment, and the firm played a large part in the development of gold dredging in California, Alaska and other countries.

This partnership and their extensive operations laid the foundation for the subsequent building of their $2,000,000 plant during the war, when, in addition to other activities, they successfully carried out an extensive ship building programme for the United States Shipping Board and the building of ships and oil tankers for private enterprise.

Since the close of the war Mr. Johnson and Mr. Peake as owners and active directing heads of the Union Construction Company, have continued to advance and carry on their work on a broader scale and have departmentized their plant until now over eight hundred men are employed in their diversified engineering activities.

In addition to the dredger building operations, the plant is engaged in the manufacture of other mining machinery, of a patented ball joint for suction dredgers, of the MacDonald front wheel drive low-bed motor dray, of "Master" sets and parts for Radio, the fabrication of structural steel, construction of steel oil-tanks and a general business in steel plate work.

PERFECT CONCEALMENT

THE "California" Secret Installation has met with instant approval by all architects and builders who have seen it. This new economical and space-saving method of installation of wall beds is being used in a number of apartment houses now under construction.

It is especially desirable for small and medium-size homes where the parlor, library or dining-room can be turned into a bedroom. The "California" Secret Installation solves the problem of having too many doors and windows and at the same time conforms to the most modern ideas in wall decoration.

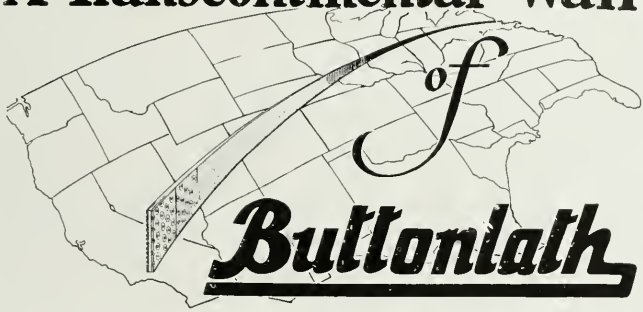
This new method of installation, together with the complete line of "Cailfornia" Wall Beds, can be seen at any of our showrooms.

Send for Booklet

California Wall Bed Co.

712 Market Street, San Francisco
165 Thirteenth Street, Oakland
1040 S. Broadway, Los Angeles

A Transcontinental Wall of Buttonlath



The twelve million yards of Buttonlath now in use on the Pacific Coast would make a seven-foot wall from San Francisco to New York with a million yards left over.

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Kennedy Products for Domestic Heating and Sanitary Lines cost no more than ordinary equipment, cause no trouble after being installed, stand more rough use, and last far longer. A few of the Kennedy types are illustrated: The Kennedy Radiator Valve, made straightway, angle, offset, corner, etc., with or without unions; the Kennedy All-Bronze Gate Valve, one of the particularly popular Kennedy types; and the Kennedy Pennie Backwater and Sewer Gas Valve, a sanitary and positive protection that should be on every waste pipe.

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BOOK REVIEWS

Edited by
CHARLES PETER WEEKS

"GOOD PRACTICE IN CONSTRUCTION." By Phillip G. Knoblock. Published by Pencil Points Press, Inc., 19 E. 24th street, New York City. Price $4.00.

A text book of details for use in the architect's drafting room. It is much handier than previous works of this kind, such as "Snyder's Details," as it is in small book form instead of large loose plates.

This book covers very thoroughly the entire subject of full-size details of building construction, the details being well chosen and representing the best practice in modern building.

This work is not the personal choice by the author of methods of doing work, but represents the best of many of the leading architectural offices. The preface by Thomas Hastings puts the stamp of approval on the work.

"THE CONSTRUCTION OF THE SMALL HOUSE." By H. Vandervoort Walsh. Published by Charles Scribner Sons, 597-5th avenue, New York City. Price $5.00.

This is a book of practical instruction for any one who intends to build or alter an old house. It deals with methods of construction, pointing out the right and wrong, and with such essentials as heating, lighting, plumbing, painting, roofing, trim, doors and windows, etc. It is a book for architects, and, above all, for the layman who needs to know how to avoid mistakes and costly rebuilding. Few books on the subject of the small house do more than give a casual glance at the entire subject, devoting most of their space to some special branch that the author is particularly interested in, and of which he may have special knowledge. This book, whose author is the instructor of construction in the School of Architecture of Columbia University, covers the entire subject thoroughly, intelligently, and very helpfully.

RECOMMENDED MINIMUM REQUIREMENTS FOR SMALL DWELLING CONSTRUCTION. By Building Code Committee of the U. S. Department of Commerce. Published by the Bureau of Standards. Government Printing Office, Washington, D. C. Price 15 cents.

Investigations by a Congressional Committee during 1919 and 1920 disclosed that existing building laws, through variations and inconsistencies of their provisions and through unduly restrictive or expensive requirements, were operating to prevent needed activity in the building industry. That these conditions might be remedied, a committee of experienced architects and engineers was organized by Secretary Hoover to inves-

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APARTMENT HOUSE, EAST 56th STREET
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J. E. R. CARPENTER,
Architect

COLOR *and* TEXTURE

FOR the modern apartment building Terra Cotta presents the best possibilities for economical results in a treatment combining elegance and richness with refinement and dignity of aspect.

In the example shown delicate polychrome glazes associated with interesting textural treatment of the rusticated ashlar give the facade an appeal which lifts the building above the usual apartment structure.

Literature pertaining to the possibilities of color treatment in its widely varying aspects will be sent on request. Address **National Terra Cotta Society**, 19 West 44th Street, New York City.

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tigate building practice and code requirements and to prepare standard building regulations based on the latest and best information, which might be recommended to cities and states adopting or revising building codes.

The first report of this Committee presents recommendations for the construction of one- and two-family dwellings having exterior walls of solid or hollow masonry, concrete, and frame, the latter including veneer and stucco surfaces.

In order that its recommendations might have sound bases of information and opinion, the committee obtained the co-operation of nearly one hundred architectural and engineering societies, builders' exchanges, and industrial organizations producing building materials.

The Committee recommends that building codes permit 8-inch solid brick and 6-inch solid concrete walls for 2½- and 3-story dwellings accommodating not more than two families each; that 8-inch hollow building tile, hollow concrete block, or hollow walls of brick shall not exceed 20 feet in height to the gables; and that frame construction be limited to 2½ stories. Metal lath and plaster on wood studs properly fire-stopped is approved for party and division walls, but at least every alternate wall in row houses must be 8-inch solid brick or concrete or 12-inch hollow building tile, concrete block, or hollow wall of brick.

The report recommends revised working stresses for timber used in dwellings, based on investigations of the U. S. Forest Products Laboratory. Live loads to be required as bases for design are 40 pounds per square foot for floors of wood, and 30 for those of monolithic type, or of solid or ribbed slabs. Foundation walls of brick are required to be 12 inches thick for excavated enclosures, and similar concrete walls shall be as thick as the walls they support, but not less than 8 inches. Special hollow building tile 12 inches thick is permitted for foundation walls of frame buildings. Detailed recommendations are given for firestopping and chimney construction, also for treatment of built-in garages.

Moves To Own Building

D. Zelinsky & Sons, painters and decorators, whose business now extends throughout the Pacific Coast, have moved to their own building at 165 Grove street, in the San Francisco Civic Center. The new structure is considerably larger than the store just vacated and has been especially planned to take care of the firm's growing business. Both office and warehouse facilities are provided. The new telephone number is Market 721. The firm also maintains an office and warehouse in Los Angeles.

For Apartment Houses as well as Homes

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A touch of hardwood trim places the entire house or building in a far higher class for use as well as for renting and selling, even after years of wear.

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The small amount of lumber required for door and window casings, mouldings, baseboards, etc., makes the cost of genuine hardwood very little over pine or redwood. A room can be finished throughout with the finest hardwoods, including built-in fixtures, for only $50 to $200 over pine or redwood. The added value to the building will, of course, be far greater than this.

Picture a walnut buffet, an oak staircase, beautiful mahogany French doors or Koa mantel and bookcases, with trim of the corresponding wood. Such an interior cannot be surpassed for lasting elegance and charm.

Express your individuality in hardwood trim; Your clients will value the results.

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Residence of Harvey N. Croft, Esq., Greenwich, Conn. Benno Janssen, Architect. J. L. Greenleaf, Landscape Architect

WHETHER at close range or in the distance, the color and texture of the face brick wall delight the eye. One hundred examples of artistic brickwork have been assembled in "Architectural Details in Brickwork." The plates, issued in three series, each in an enclosed folder, ready for filing, will be sent to any architect requesting them on his office stationery. Address, American Face Brick Association, 1750 Peoples Life Building, Chicago, Illinois.

Grinnell Company Expands

Sale of two and one-half acres of the property of the Southern California Iron & Steel Company at Fourth and Mateo streets, Los Angeles, to the Grinnell Company of California, is announced by President A. C. Denman of the steel company. The consideration is approximately $250,000. Buildings and equipment of the steel company's plant at this location will be moved to its new plant at Huntington Park in the near future. This will involve an expenditure of about $500,000. Approximately $1,000,000 has already been expended on the Huntington Park plant. The Grinnell Company will erect an office building on Mateo street and remodel a building, which is included in the sale, for use as a warehouse and for assembling automatic sprinkler systems which are manufactured in the East. These improvements together with new railroad switching facilities will cost the Grinnell Company approximately $250,000.

"Medusa" Collecting Waterproofing Data

The Sandusky Cement Company, Cleveland, Ohio, is sending out a questionnaire to those who specify and use "Medusa" products. The object is to secure a compilation of the various applications which have been made of Medusa cements and Medusa waterproofing in all phases of concrete and waterproofing work. When the questionnaires have been turned in, the company expects to issue a digest of them all in book shape. It will, no doubt, be an elaborate, pretentious affair, and like the other "Medusa" publications, contribute real support and momentum to the ever-increasing advance of the many-sided concrete industry.

New Secretary, A. G. C. A.

Mr. Eugene Young, formerly secretary of the Minneapolis Builders Exchange, has been appointed secretary of the Associated General Contractors of America. In the selection of Mr. Young, the Association has obtained a man well qualified to assume the duties of such an office. His success in organization work and in dealing with labor problems in Minnesota is well known in construction circles, and as a monument to his executive ability he left the Builders Exchange a membership of 380, a modern 12-story office building, and a surplus in their treasury.

Paint As a Fire Retardant

Contrary to general belief, paint, not when stored in open cans but applied to bare wood, does not add to its natural inflammability, says Mr. Albert Brace in

Welfare of the Rising Generation

Sunshine and air are indispensable and dominant influences in behalf of growing youngsters.

The playhouse, playroom or nursery should have an extra area of window glass, to the extreme limit allowed by heating considerations.

A fitting finish to well-drawn plans is to specify American Window Glass Company's Products.

American Window Glass is carefully graded under double inspection, well flattened and of uniform strength. Architects who know this will, of course, specify it and not just "single or double-strength glass."

For your protection and assurance of quality the long ellipse appears on every box of the genuine, together with the grade marking, A or B. Specify the best.

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The National Builders, and continues: On the contrary, it makes lumber more resistant to fire and on shingle roofs its use is decidedly desirable where the paint in question contains over 54 per cent of non-combustible pigment. This is the least content of prepared paints in general, and their application results in giving the shingle a semi-metallic film that renders smooth the fuzzy surface of the wood and prevents the warping that creates pockets in which dangerous cinders blown by the wind might ignite.

Big Roofing Order

The largest single order of roofing ever shipped to the Orient was consigned for Bombay, India, on the steamer Diana Dollar, from San Francisco, March 20th.

The shipment consisted of fifty-one carloads of reinforced Malthoid roofing for Pbco roofs, and will be used on the warehouses of the Port Trust cotton depot, Bombay, India.

It was manufactured by The Paraffine Companies, Inc., in their Emeryville plant, which is the largest single roofing plant in the world.

Designing Monterey Hotel

Architects O'Brien Bros., are preparing plans for a Spanish type hotel to be built in Monterey for B. Jacks and which is to be leased by the proprietors of the St. George Hotel, at Santa Cruz. The architecture of the new hostelry will be similar to that of the Mission Inn at Riverside. The same architects are preparing plans for a six-story Class C reinforced concrete apartment house for Dr. Orella, to be erected on Leavenworth Street, near Post, San Francisco, at an estimated cost of $90,000.

They are also making plans for a concrete garage in Oakland, to be leased by the Pacific States Telephone Company. Plans have been completed by the same architects for a four-story reinforced concrete hospital to be built on Trenton street, near Jackson, San Francisco, for the Chinese Six Companies. Cost is estimated at $125,000.

Valve Contracts Awarded

The Portland Railway Light & Power Company has awarded to the Pelton Water Wheel Company contracts for furnishing the following valves for its Oak Grove project: 72-inch butterfly valve at the lower end of the penstock, 72-inch Johnson valve at the upper end, and a relief valve for the turbine itself. This turbine, which is a vertical unit and will develop 35,000 H. P. under a head of 850 feet, is now under construction at the Pelton shops. It will be the highest head reaction turbine in the world.

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RAPID RATE
Water Softeners
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Soft Water a Welcome Recommendation

When you suggest soft water in the new home, you please every member of the family. It is a real boon in the laundry, in the bath, and is actually far better for cooking and drinking.

When you go farther, and suggest a Wayne Softener, you can point to distinct advantages,—such as greater simplicity, a more rapid rate of softening, soft water in unlimited quantities, at regular city pressure, and lower cost because of elimination of storage tanks.

We urge that you obtain all the facts about the Wayne Softener. Please write for literature.

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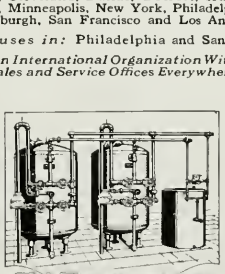

Wayne

Radical Change in Home Sanitation

By G. H. Oyer

There is no doubt but that the Flushometer or flush valve of the modern system of toilet sanitation, has shown its supremacy over all other forms for use in large buildings where abundant water supply is aceded. It will come into more general use as its merits are recognized.

But like all else of a mechanical nature it has had several defects that appeared in actual use. One of the objections most frequently met to the use of flush valves, as expressed by those who have the duty of taking care of them, is that they all are frequently clogged by sediment and until cleaned and repaired are out of service and wasteful of water.

It is conceded that any and every flush valve made will function perfectly, even ideally, in pure, clean, sediment-free water. But where is there any such water in actual service?

The demand for modern appliances and conveniences for the home has brought into the market new devices and improvements of old ones, that go far toward making the home of today a more comfortable and pleasant place to live in.

One of the really valuable improvements just now making its way into the channels of trade is the Handy Self-Cleaning Flush Valve.

This valve is new only in the sense of making its appearance on the market now. It nas had four years of the most difficult tests of actual use that could be given it. It has been operating in all kinds of water in the various parts of the State. Its efficiency and effectiveness have been fully demonstrated and established.

The change in construction made by the designers of this Handy Flush Valve, which anyone can plainly see on examination, brings into service the force of gravitation for removing all sediment and impurities from the water used in controlling the action of the valves.

During these four years test of service, the makers state, not one valve of upward of one hundred used in the field has clogged and it is for this reason it is called the Non-Clogging Valve.

The needs of the refined home have apparently been met fully by their Model A valve, designed exclusively for the home. Its form, graceful lines and balanced proportions, are especially fortunate in that it has a general appearance and finish that make it an ornament to any bath-room.

It is quite a new development in the field of residence or home sanitation and it assuredly removes the embarrasment attendant on the everywhere present, whistling, singing, gurgling wall tank toilet.

No one need be told that he wants a quite toilet in his home. He already knows it but has not been able to find it.

The explanation given as to how the usual noises in the use of the toilet were eliminated is this—In the old way the refil of the wall tank is made through a continually diminishing aperture, such as a slowly closing valve, and it is this that creates the sounds and noises that increase in pitch and intensity, vibrating all through the house until the valve is entirely closed. The new system is just the reverse of the old way. In the Handy Model A valve, the water enters from the customary half inch supply pipe found in all homes and flows into a continually enlarging space against a cushion of air. Consequently there are no vibrations produced to go all through the house. Neither host nor guest is embarrassed.

When it is considered that there are no changes from the usual plumbing plans of home building, no special piping, no extra fixtures, no special make or kind of bowls, but that in the use of this valve it falls into place naturally, inexpensively and entirely satisfactory, it can be seen that it has entered a tremendously broad field of usefulness and convenience.

These valves are manufactured in San Francisco by the Handy Self-Cleaning Flush Valve Co., at present located at 731 Folsom street. On the opposite page will be found a brief resume of the main features of the company's product, with cuts showing the two designs, Model A for homes and Model B for large buildings. A 44 page catalog, fully describing the new system may be had for the asking.

Site For Club Building

The Athens Athletic Club of Oakland, has purchased the Congregational Church property at 12th and Clay streets, that city, as a site for a new club building. The original plans to erect a skyscraper at 14th and Franklin streets, have been abandoned.

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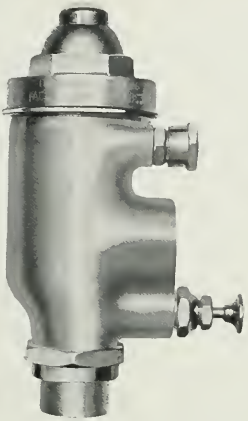
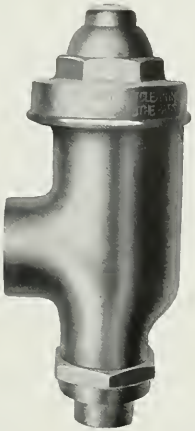


MODEL A
INDIRECT FLUSH
For Residences served by half-inch or larger supply pipe



MODEL B
DIRECT FLUSH
For Hotels, Office Buildings, or others served by three-quarter inch or larger supply pipe

The Non-Clogging Valve

DOES not produce a noise you do not want heard and do not want to hear.

Neither host nor guest is embarrassed.

Makes your toilet what a toilet should be.

Gives perfect cleansing flush. Washes bowl clean. Ends water losses through leakage. Cuts water bill for the toilet in half.

Only ONE movable part. Nothing to get out of order. Can be attached to whatever bowl you now have in toilet.

Functions perfectly with any make or kind of bowl.

Catalog giving full description with roughing-in dimensions for any kind of an installation sent on request.

Demonstration and display in "Universal Exhibits" in basement of Monadnock Building; and at Factory.

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Handy Self-Cleaning Flush Valve Company

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SAN FRANCISCO, CALIF.

When writing to Advertisers please mention this magazine.

Hunt Company Supervised Test

Editor Architect and Engineer,
San Francisco, Calif.

In the March issue of The Architect and Engineer, on page 114, is a statement to the effect that a rather important and very interesting conflagration test was made under the supervision of Robert W. Hunt, chemical engineer.

Will it be imposing too greatly upon your good nature and "auld acquantance" to ask a line of correction in the next issue?

Captain Robert W. Hunt, the head of our firm, lives in Chicago and was not present during the National Fibreform Company's fire test, which was made under the supervision of representatives from the San Francisco office of Robert W. Hunt & Company, engineers.

Yours very truly,
Wm. B. Gester, Manager,
Robert W. Hunt & Company.

Addition To Museum

Architects Weeks & Day, of San Francisco, have completed plans and a contract has been let to K. E. Parker & Company, for approximately $70,000 for an addition to the De Young Museum at Golden Gate Park. The same architects are preparing working drawings for a three-story reinforced concrete newspaper plant for the San Francisco Chronicle on the southeast corner of Fifth and Mission streets, San Francisco, at a cost of $250,000. or more.

Stockton College Building

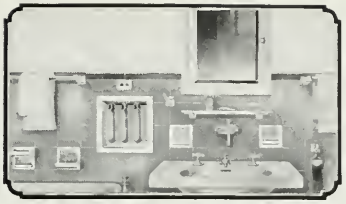
Plans have been completed by Architects Louis S. Stone and Franklyn E. Warner, 309 Exchange Bldg., Stockton, for a two-story brick and terra cotta administration building for the College of the Pacific, which is to be moved from San Jose to Stockton. Other buildings now being designed, include a conservatory, Frank Mayo, architect and a memorial science building, Losekann & Clowdsley, architects.

Six-Story Office Building

Plans are being prepared by Architect Ben G. McDougall, for a six-story reinforced concrete store and office building for Mr. T. C. Kierulff, Balfour building, San Francisco. Structure will be erected on the west side of Sansome street, between Pine and California Sts., San Francisco, and will cost in the neighborhood of $100,000.

To Build Emeryville Factory

The Detroit Steel Products Company has had plans prepared by Architect Washington Miller for a factory and warehouse to be built in Emeryville, being the first unit of the company's proposed Pacific Coast plant. Structure will be one-story 126x108, containing 13,000 square feet.



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Perfect Bathroom

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Fairfacts Fixtures are found in many of the finest residences, hospitals, apartment buildings, and hotels in America.

For details and specifications see 17th Edition, Sweet's Architectural Catalogue, Pages 1463, 1464, 1465

Fairfacts Accessories are installed by tile contractors and should be included in the tile contract. We do not sell to the plumbing trade.

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BUILT IN YOUR BATHROOM WALLS

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Many Installed on the Pacific Coast

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KEWANEE BOILER COMPANY

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Present Cost of Building Materials

THESE quotations are based on reliable information furnished by the San Francisco material houses. Date of quotations, April 20, 1923.
All prices f. o. b. cars San Francisco or Oakland For country work add freight and cartage to prices given.

American Institute of Architects' Fees

New work—Usual rate, 6 per cent minimum charge recommended by the Institute.
Alterations—7 to 10 per cent as a minimum.
High class residence work—10 per cent as a minimum. Editor's Note—These rates not mandatory.

Bond—1½% amount of contract.

Brickwork—
Common, $36.00 per 1000 laid.
Face, $80.00 per 1000 laid.
Enamel, $150.00 per 1000 laid.
Common, f. o. b. cars, $15.50, plus cartage.
Face, f. o. b. cars, $50.00 per 1000, carload lots.

HOLLOW TILE FIREPROOFING (Delivered to building in carload lots.)

12x12x3 in.	$102.00 per M
12x12x4 in.	115.00 per M
12x12x6 in.	160.00 per M
12x12x8 in.	165.00 per M

Hod carriers, $6.50 per day.
Bricklayers, $10.00 per day.
Lime—$2.25 per bbl.; carload, $2.15

Composition Floors—24c to 50c per sq. ft. In large quantities, 24c per sq. ft.
Composition Stucco—$1.90 to $2.10 per sq. yard (applied).

Concrete Work (material at San Francisco bunkers)—

No. 3 rock	$2.15 per yd.
No. 4 rock	2.30 per yd.
Niles pea gravel	3.50 per yd.
Niles gravel	2.35 per yd.
Niles top gravel	2.75 per yd.
City gravel	2.15 per yd.
River sand	1.25 per yd.
Delivered bank sand	1.00 per yd.

SAND

Del Monte	$1.25 to $1.50 per ton
Fan Shell Beach	2.50 to 3.00 per ton

Car lots, f. o. b. Lake Majella.
Cement (f. o. b. cars) $3.03 per bbl.
Rebate for sacks, 10c each.

Atlas "White"	$10.50 per bbl.
Medusa "White"	$ 9.75 per bbl.
Forms, Labors	$30.00 per M

Wage—

Concrete workers	$5.00 per day
Cement finishers	8.50 per day
Laborers	5.00 per day

Dampproofing—
Two-coat work, 25c per yard.
Membrane waterproofing—4 layers of P. B. saturated felt, $5.25 per square.
Hot coating work, $2.00 per square.
Wage—Roofers, $7.50 per day.

Electric Wiring—$7.00 to $11.00 per outlet for conduit work (including switches).
Knob and tube average $3.25 to $6.00 per outlet.
Wage—Electricians, $8.00 per day.

Elevators—
Prices vary according to capacity, speed and type. Consult elevator companies. Average cost of installing an automatic elevator in 4-story bldg., $3,800; direct automatic, about $3,400.

Excavation—
$1.50 per yard, if sand. Teams, $10.00 per day. Trucks, $21 to $30 per day.
Above figures are an average without water. Steam shovel work in large quantities, less; hard material, such as rock, will run considerably more.

Fire Escapes—
Ten-foot balcony, with stairs, $100.00 per balcony.

Glass—(Consult with manufacturers.)
21 ounce, 20c per square foot.
Plate, $1.25 per sq. ft.
Art, $1.00 up per square foot.
Wire (for skylights), 40c per sq. ft.
Obscure glass, 28c per square foot.
Note—Add extra for setting.
Wage—Glaziers, $7.50 per day.

Heating—
Average, $2.25 per sq. ft. of radiation, according to conditions.
Wage—Steamfitters, $9.00 per day.

Iron—Cost of ornamental iron, cast iron, etc., depends on designs.
Wage—Iron workers, bridge and structural, $9.00 per day.
Architectural iron workers, $7.00 per day.

Lumber—(Prices delivered to bldg. site)
Common, $42 per M (average).
Com'n O.P. (select, avrg...$45.00 per M
Flooring—

1 x 6 No. 3—Form lumber	$30.00 per M
1 x 4 No. 1 flooring	80.00 per M
1 x 4 No. 2 flooring	73.00 per M
1 x 4 No. 3 flooring	55.00 per M
1 x 6 No. 2 and better flooring	70.00 per M
1¼ x 4 and 6 No. 2 flooring	75.00 per M

Slash grain—

1 x 4 No. 2 flooring	53.00 per M
1 x 4 No. 3 flooring	55.00 per M

No. 1 common run to

T. & G.	$45.00 per 1000
Lath	8.00 per 1000

Shingles—(Add cartage to prices quoted)

Redwood, No. 1	$1.25 per bdle.
Redwood, No. 2	1.10 per bdle.
Red Cedar	1.50 per bdle.

Building Paper—

1 ply per 1000 ft. roll	$6.25
2 ply per 1000 ft. roll	9.60
3 ply per 1000 ft. roll	14.55
Sash cord com. No. 7	1.25 per 100 ft.
Sash cord com. No. 8	1.40 per 100 ft.
Sash cord spot No. 7	1.90 per 100 ft.
Sash cord spot No. 8	2.30 per 100 ft.
Sash weights cast iron	60.00 Ton

Hardwood Flooring—

	13/16x3¼" T & G Maple		$170 M ft.
	1 1/16x2¼" T & G Maple		175 M ft.
	⅞x3½" Sq. Edge Maple		143 M ft.
		13/16x2¼" T&G	⅜x2" T&G	5/16x2" Sq. Ed.
Clr.	Qtd. Oak	$243 M	$170 M	$205 M
Sel.	Qtd. Oak	195 M	125 M	150 M

Wages as noted under various trades is minimum scale. All trades in San Francisco are paying from 50c to $3.00 a day bonus.

Clr. Pla. Oak	195 M	127 M	150 M
Sel Pla. Oak	175 M	107 M	135 M
Clear Maple	170 M	115 M	
Orion	140 M	100 M	100 M
Bagac	130 M	90 M	90 M
Laying and Finishing	16c ft.	15c ft.	13c ft.

Wage—Floor layers $9.35 per day.

Millwork—

O. P., $125 and up per 1000. R. W., $140 and up per 1000.
Double hung box window frames, average) with trim, $8.00 and up, each.
Doors, including trim (single panel), $11 and up, each.
Doors, including trim (five panel), $9.00 each.
Screen doors, $3.50 each.
Cases for kitchen pantries seven feet high, per lineal foot, $9 each.
Dining room cases, if not too elaborate, $18.00 each.
Labor—Rough carpentry, warehouse heavy framing (average) $16 per m.
For smaller work, average, $28.00 to $35.00 per 1000.
Wage—Carpenters, $8.00 per day.
Laborers—$5.00 per day.

Marble—(Not set), add 40c to 60c per ft. for setting.

Columbia	$1.60 sq. ft.
Alaska	1.65 sq. ft.
San Saba	3.15 sq. ft.
Tennessee	2.00 sq. ft.
Verde Antique	3.75 sq. ft.
Westfield Green	3.50 sq. ft.

Wages—Marble setters, $8.00 per day; helpers, $5.50 per day. Marble polishers and finishers, $6.00 per day.

Painting—

Two-coat work ..... 35c per yard
Three-coat work ..... 50c per yard
Whitewashing ..... 5c per yard
Cold water painting ..... 9c per yard
Turpentine, $1.08 per gal. in cases and 93c per gal. in tanks.
Raw Linseed oil....$1.16 per gal. in bbls.
Boiled Linseed oil..$1.18 per gal. in bbls.
Pioneer white and red lead, 11¾c lb. in one ton purchases; 12½c lb. for less than 500 lbs.
Wage—Painters, $8.00 per day.
Note — Accessibility and conditions cause wide variance of costs.

Patent Chimneys—

6-inch	$1.50 lineal foot
8-inch	1.75 lineal foot
10-inch	2.25 lineal foot
12-inch	3.00 lineal foot

Pipe Casings—14" (average), $7.50 each.

Plastering—

Interior, on wood lath, 70c per yard.
Interior, on metal lath, $1.30 per yard.
Exterior, on brick or concrete, $1.30 per yard.
Portland White, $1.75.
Interior on brick or terra cotta, 60c to 70c per yard.
Exterior, on metal lath, $1.85 to $2.25 per yard.
Wood lath, $8.00 at yard per 1000.
Metal studding, $1.25 to $1.50 per yard.
Suspended ceiling and walls (metal furring, lathing and plastering), $2.00 per yard.
Galv. metal lath, 33c and up per yard, according to gauge and weight.
Lime, f. o. b. warehouse, $2.15 per bbl.
Lime in less than carload lots, $2.25 per bbl.
Hardwall plaster, $20,00 per ton, f. o. b. warehouse. (Rebate on sacks, 15c.)
Finishing plaster (carload lots), $19.00.
Hydrate of lime, $19.50 per ton, f. o. b. warehouse.
Wage—Plasterers, $10.00 per day.
Lathers, $8.00 per day.
Hod carriers, $7.00 per day.

Plumbing—

From $75.00 per fixture up, according to grade, quantity and runs.
Wage—Plumbers, $9.00 per day.

Reinforcing Steel—

Base price for car load lots, $3.80 per 100 lbs., f. o. b. cars on docks.
Average cost to install, $25 per ton.
Wage—Housesmiths, $8.00 per day.

Roofing—

Five ply tar and gravel, $6.00 per square for 30 squares or over.
Less than 30 squares, $6.25 per square.
Tile, $35.00 to $50.00 per square.
Redwood Shingles, $12.00 per square in place.
Cedar Shingles, $12.00 per sq. in place.
Reinf'd Pabco, 7 yr. roof, $7.50 per sq.
Reinf'd Pabco, 10 yr. roof, $8.25 per sq.
Reinf'd Pabco, 20 yr. roof, $14 per sq.
Recoat, with Gravel, $3.00 per square.
Wage—Roofers, $8.00 per day.

Sheet Metal—

Windows—Metal, $2.00 a square foot.
Fire doors, (average), including hardware, $2.30 per sq. ft.

Skylights—

Copper $1.25 a square foot (not glazed)
Galvanized iron, 35c a square foot (not glazed).
Wage—Sheet metal workers, $8.50 per day.

Stone—

Granite, average $8.50 sq. ft. in place.
Sandstone, average $6.00 sq.ft. in place.
Indiana Limestone, $4.25 per sq. ft. in place.
Wage—Stone cutters, $8.00 per day.
Stone setters, $8.50 per day.

Store Fronts—

Zouri copper sash bars for store fronts, corner, center and around sides, will average 85c per lin. ft.
Zouri Underwriters' Specification Safety sash and bars, $1.10 per lin. ft.
Note—Consult with agents.

Structural Steel—$125 per ton (erected).
This quotation is an average for comparatively small quantities.
Light truss work higher; plain beam and column work in large quantities, less.
Cost of steel for average building (erected), $115 per ton.

Steel Sash—

All makes, from S. F. stock, 26c to 34c per sq. ft.
All makes, plant shipment, 28c to 34c per sq. ft.
(Includes mullions and hardware.)

Tile—White glazed, 80c per foot.
White floor, 80c per foot.
Colored floor tile, $1.00 per foot.
Promenade tile, $1.00 per sq. ft. laid.
Wage—Tilesetters, $8.00 per day.

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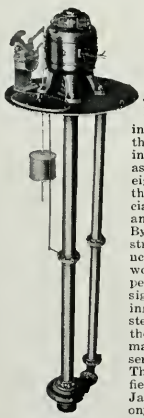

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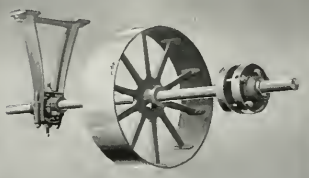

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Applied to the inside of exterior walls. It cures tacky and remains tacky and plastic indefinitely.
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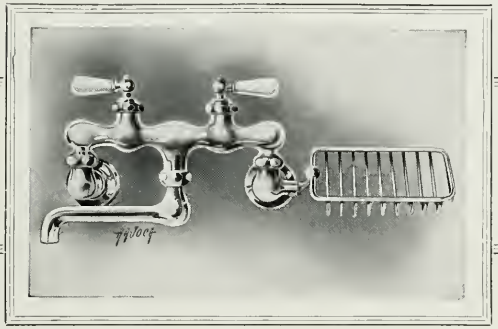
A faucet that will deliver hot, mixed or cold water :: ::



Installed in the kitchen sink, this popular Quaker fixture supplants the customary two separate faucets, and provides a convenient place for soap.

It lightens work and saves time

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The MUELLER COMBINATION SINK FAUCET is especially desirable—Hot, Cold or Tempered water through spout or spray?

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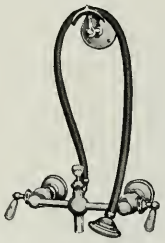

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Dickey Face Brick, in its varied tones and finishes, gives unlimited scope to the architect's fancy in devising walls of mellow beauty.

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It is our one objective to produce the most efficient and the most beautiful plumbing fixtures. True, this is a high mark for which we are aiming, but we present to you the All-in-One line as the product of thorough study, the best of materials, the best of workmanship, and ask you to judge it from the standards of plumbing fixture excellence.

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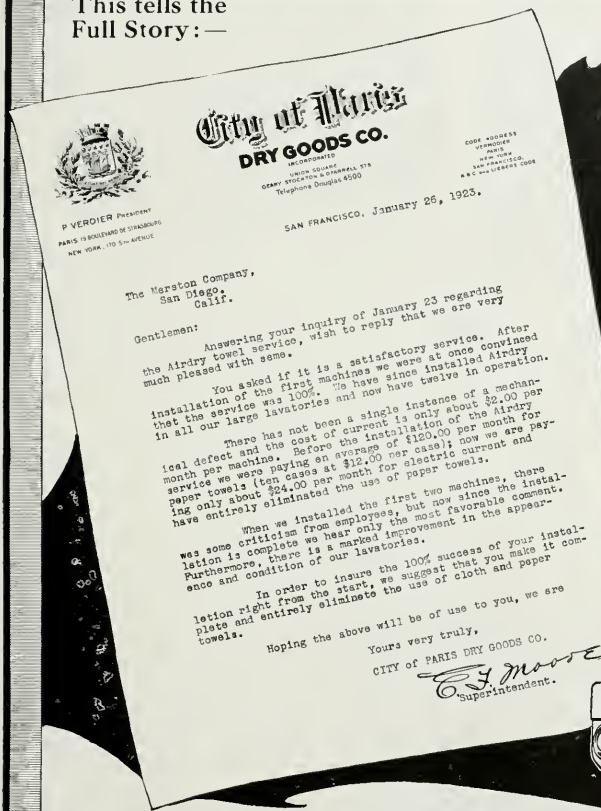
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SAN FRANCISCO, January 26, 1923.

The Marston Company,
San Diego,
Calif.

Gentlemen:

Answering your inquiry of January 23 regarding the Airdry towel service, wish to reply that we are very much pleased with same.

You asked if it is a satisfactory service. After installation of the first machines we were at once convinced that the service was 100%. We have since installed Airdry in all our large lavatories and now have twelve in operation.

There has not been a single instance of a mechanical defect and the cost of current is only about $2.00 per month per machine. Before the installation of the Airdry service we were paying an average of $120.00 per month for paper towels (ten cases at $12.00 per case); now we are paying only about $24.00 per month for electric current and have entirely eliminated the use of paper towels.

When we installed the first two machines, there was some criticism from employees, but now since the installation is complete we hear only the most favorable comment. Furthermore, there is a marked improvement in the appearance and condition of our lavatories.

In order to insure the 100% success of your installation right from the start, we suggest that you make it complete and entirely eliminate the use of cloth and paper towels.

Hoping the above will be of use to you, we are

Yours very truly,

CITY of PARIS DRY GOODS CO.

E. F. Moore
Superintendent.

One AIRDRY user answers another store's query. This letter is voluntary testimony to the worth and lasting satisfaction of "The Electric Towel." It has the same successful experience everywhere, because it provides modern sanitation and a better service — at less cost. Descriptions of models upon request.

AIRDRY CO. of CALIFORNIA

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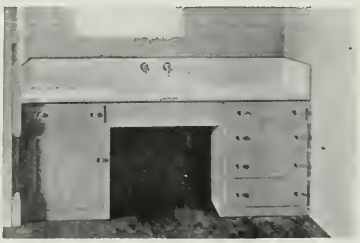

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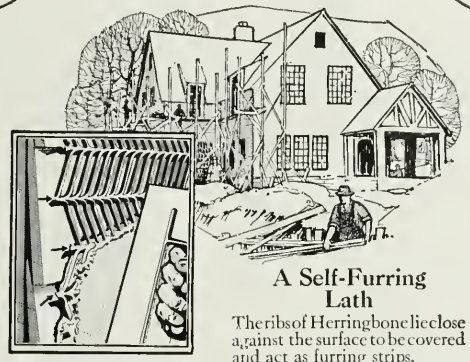

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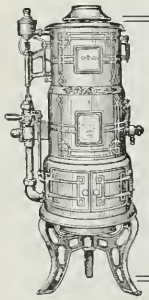

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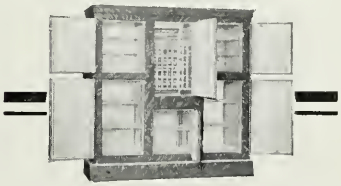

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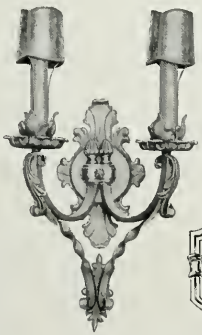

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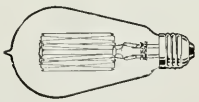

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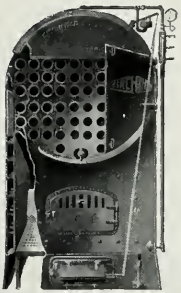

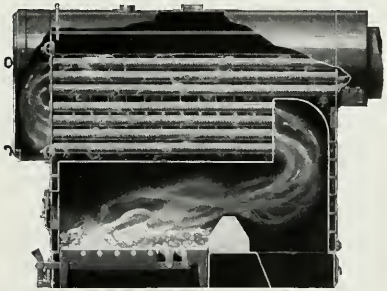

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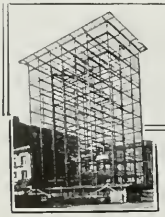

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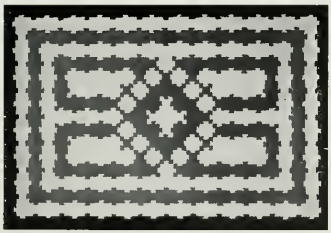

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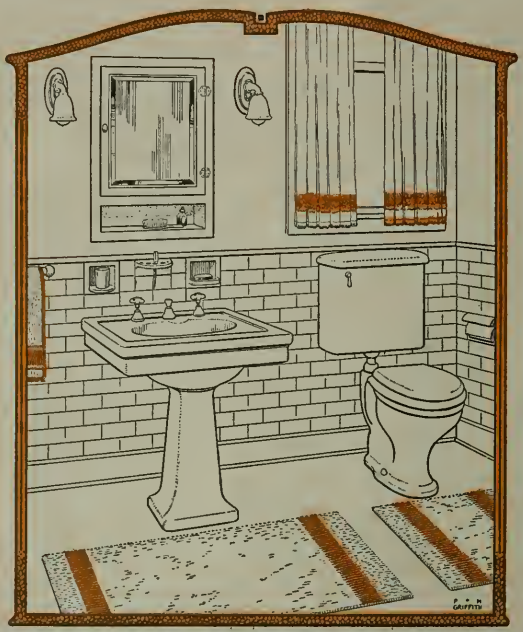

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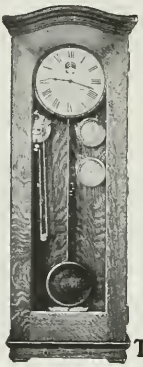

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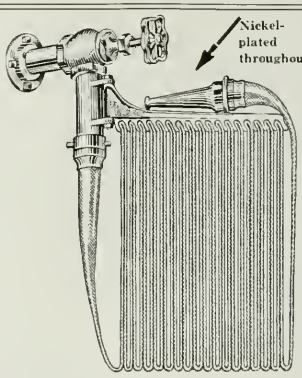

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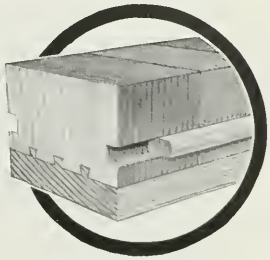

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Pacific Materials Co., Underwood Bldg., San Francisco.
Waterhouse-Wilcox Co., 523 Market St., San Francisro.
C. H. Jensen Co., Call Building, San Francisco.
John R. Steffens-Lomax Co., Monadnock Bldg., San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco

BUILDING PAPER
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

BUILDING TILE (Burned Clay)
California Brick Co., 604 Mission St., San Francisco.

CABINET MAKERS
Home Manufacturing Company, 543 Brannan St., San Francisco.
Mullen Manufacturing Company, 64 Rausch St., San Francisco.
Lannom Bros. Mfg. Co., 5th and Magnolia Sts., Oakland.
Pacific Mfg. Co., San Francisco, Los Angeles and Oakland.

CASEMENT WINDOW HARDWARE
Richards-Wilcox Mfg. Co., Aurora, Ill., and Underwood Bldg., San Francisco.

CEMENT
Atlas Portland Cement Co., agencies in all principal Coast cities.
Best Bros. Keene's Cement Co., John R. Steffens-Lomax Co., Agents, Monadnock Bldg., San Francisco.
Old Mission Portland Cement Co., Mills Bldg., San Franciaco.
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The Paraffine Companies, San Francisco, and principal Coast Cities.

CEMENT EXTERIOR WATERPROOF PAINT
Armorite, sold by W. P. Fuller & Co., all principal Coast cities.
Minwax Co., Inc., 22 Batery St., San Francisco and 653 S. Clarence St., Los Angeles.
The General Fireproofing Company, 20 Beale Street, San Francisco

CEMENT STUCCO
"California" sold by Atlas Mortar Company, Holbrook building, San Francisco.

CEMENT TESTS—CHEMICAL ENGINEERS
Robert W. Hunt & Co., 251 Kearny St., San Francisco.

CLAY PRODUCTS
California Brick Co. and Livermore Fire Brick Works, 604 Mission St., San Francisco.
Cannon & Co., Sacramento, Cal.
Gladding, McBean & Co., Crocker Bldg., San Francisco.
Los Angeles Pressed Brick Co., Frost Bldg., Los Angeles.
Tropico Potteries, Inc., Glendale, Cal.
United Materials Co., Sharon Bldg., San Francisco.

CLOCKS—ELECTRIC TIME
Pacific Electric Clock Co., 714 Wells-Fargo Bldg. San Francisco.
Standard Electric Time Co., 461 Market St., San Francisco.

COLD STORAGE PLANTS
Cyclops Iron Works, 837 Folsom St., San Francisco.

COMPOSITION FLOORS
"Linotol" plastic flooring, Hill, Hubbell & Co., 115 Davis St., San Francisco; 410 San Fernando Bldg., Los Angeles.
Western Asbestos Magnesia Company, 25 South Park, San Francisco.
Hoff Magnesite Co., San Francisco, Miller & Alf, 337 Monadnock Bldg., San Francisco, general agents.

CONCRETE BUILDING ACCESSORIES
John R. Steffens-Lomax Co., 951 Monadnock Bldg., San Francisco.

CONCRETE OR CEMENT HARDENER
Gunn, Carle & Co., Inc., 444 Market St., San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco

CONCRETE MIXERS
Foote and Jaeger mixers sold by Edward R. Bacon Co., 51 Minna St., San Francisco, also Los Angeles.

CONCRETE REINFORCEMENT
Edw. L. Soule Co., Rialto Bldg., San Francisco.
Gunn, Carle & Co., Inc., 444 Market St., San Francisco.
Clinton Welded Wire Fabric, Wickwire Spencer Steel Corporation, 111 Townsend St., San Francisco.
Judson Mfg. Co., 817-821 Folsom St., San Francisco.
Pacific Coast Steel Company, Rialto Bldg., San Francisco.
Triangle Mesh Fabric. Sales agents, Pacific Materials Co., 525 Market St., San Francisco.
Truscon Steel Co., 709 Mission St., San Francisco.
Badt-Falk Co., Call-Post Bldg., San Francisco.

CONDUITS
"Sherarduct," Garnett Young & Company, 612 Howard St., San Francisco.

CONTRACTORS, GENERAL
Barrett & Hilp, 918 Harrison St., San Francisco.
Herbert Beckwith, Everson Bldg., Oakland.
Larsen-Siegrist Co., Inc., 807 Claus Spreckels Bldg., San Francisco.
R. W. Littlefield, 357-12th St., Oakland.
K. E. Parker Co., Inc., Clunie Bldg., San Francisco.
Dinwiddie Construction Co., Crocker Bldg., San Francisco.
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Chas. Stockholm & Son, Monadnock Bldg., San Francisco.

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Monson Bros., 251 Kearny St., San Francisco.
Geo. Wagner, 251 Kearny St., San Francisco.
T. B. Goodwin, 180 Jessie St., San Francisco..
McLeran & Co., R., Hearst Bldg., San Francisco.
Robert Trost, 26th and Howard Sts., San Francisco.
I. M. Sommer, 401 Balboa Bldg., San Francisco.
Jas. L. McLaughlin, 251 Kearny St., San Francisco.
Alfred H. Vogt, 185 Stevenson St., San Francisco.
Lange and Bergstrom, Sharon Bldg., San Francisco and Washington Bldg., Los Angeles.
David Nordstrom, 4146 Emerald Street, Oakland.

CONTRACTORS' EQUIPMENT
Edward R. Bacon Co., 51 Minna St., San Francisco, and Los Angeles.

CONVEYING MACHINERY
Messe & Gottfried, San Francisco, Los Angeles, Portland and Seattle.

CONVENIENCE OUTLETS
Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St.

CORK TILE
Van Fleet-Freear Co., Sharon Bldg., San Francisco.

CRUSHED ROCK
Coast Rock & Gravel Co., Call-Post Bldg., San Francisco.

CURTAINS—STEEL, ROLLING, FIREPROOF
J. G. Wilson Corp., 621 N. Broadway, Los Angeles.

DAMP-PROOFING AND WATERPROOFING
Armorite Damp Resisting Paint, made by W. P. Fuller & Co., San Francisco.
"Imperial," manufactured by Brooks & Doerr, Merchants National Bank Building, San Francisco.
Samuel Cabot Co., Boston; represented in San Francisco by Pacific Materials Co., Underwood Bldg., San Francisco.
"Pabco" Damp-Proofing Compound, sold by the Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.
Western Asbestos Magnesia Company, 25 South Park, San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco

DOOR HANGERS
McCabe Door Hanger Company, leading hardware stores,
Pitcher Hanger, sold by National Mill & Lumber Co., 326 Market St., San Francisco.
Stanley Works, New Britain, Conn., Monadnock Bldg., San Francisco.
Richards-Wilcox Mfg. Co., Underwood Bldg., San Francisco.

DOORS—VANISHING
W. L. Evans, 700 Block B., Washington, Ind.

DRAIN PIPE AND FITTINGS
"Corrosiron" Acid Proof, manufactured by Pacific Foundry Co., Harrison and 18th Sts., San Francisco.

DRINKING FOUNTAINS
Haws Sanitary Drinking Faucet Co., 1808 Harmon St., Berkeley, and C. F. Weber & Co., San Francisco and Los Angeles.
Crane Company, San Francisco, Oakland, and Los Angeles.
Pacific Porcelain Ware Co., 67 New Montgomery St., San Francisco.
Haines, Jones & Cadbury Co., 857 Folsom St., San Francisco.

DUMB WAITERS
Spencer Elevator Company, 166-7th St., San Francisco.
San Francisco Elevator Company, Inc., 860 Folsom St., San Francisco.

ELECTRICAL APPLIANCE SUPPLIES
Electric Appliance Company, 809 Mission St., San Francisco.

ELECTRICAL CONTRACTORS
Butte Electrical Equipment Company, 530 Folsom St., San Francisco.
Butte Electric & Manufacturing Co., 534 Folsom St., San Francisco.
Central Electric Company, 185 Stevenson St., San Francisco.
NePage, McKenny Co., 589 Howard St., San Francisco.
Newbery Electrical Co., 359 Sutter St., San Francisco.
Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.
Globe Electric Works, 1959 Mission St., San Francisco.
M. E. Ryan, Redwood City, and 520 Clunie Bldg., San Francisco.
H. S. Tittle, 766 Folsom St., San Francisco.
Brown-Langlais Electrical Construction Co., 313 Fifth Street, San Francisco.
A. F. Wells Company, 155 Second St., San Francisco.

ELEVATOR MOTORS AND CONTROL
Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., and First National Bank Bldg., San Francisco, Calif.

ELECTRIC PLATE WARMER
The Prometheus Electric Plate Warmer for residences, clubs, hotels, etc. Sold by M. E. Hammond, Pacific Bldg., San Francisco.

ELECTRICAL SUPPLIES AND EQUIPMENT
"H. & H. Switches," Garnett Young & Co., 612 Howard St., San Francisco.
Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St.
Drendell Electrical & Mfg. Co., 1345 Howard St., San Francisco.

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Otis Elevator Company, Stockton and North Point, San Francisco.
Spencer Elevator Company, 166-7th St., San Froncisco.
San Franciaro Elevator Co., 860 Folsom St., San Francisco.
Union Construction Company, Balfour Bldg., San Francisco.

ELEVATOR DOOR HARDWARE
Richards-Wilcox Mfg. Co., Underwood Bldg., San Francisco.

ENGINEERS—CONSULTING, ELECTRICAL, MECHANICAL
Chas. T. Phillips, 550 Montgomery St., San Francisco.
Hunter & Hudson, Rialto Bldg., San Francisco.
Ralph E. Dodge, 251 Kearny St., San Francisco.
Meese & Gottfried, San Francisco, Seattle, Portland, Los Angeles.

FANS AND BLOWERS
Tiltz Engineering and Equipment Co., 479 Monadnock Building, San Francisco.

FAIENCE TILE
Tropico Potteries, Inc., Glendale, Cal.

FELTS
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

FENCES—WIRE AND IRON
Standard Fence Company, 432 Bryant, San Francisco and 60th and Lowell Sts., Oakland.

FIRE BRICK, TILE & CLAY
Livermore Fire Brick Works, 604 Mission St., San Francisco.

FIRE EXIT LATCHES
Vonnegut Hardware Co., Indianapolis, Ind., represented in San Francisco by Abeel Jensen Co., Call Building.

FIRE ESCAPES
Michel & Pfeffer Iron Works, 1415 Harrison St., San Francisco.
Palm Iron & Bridge Works, Sacramento.
Western Iron Works, 141 Beale St., San Francisco.

FIRE HOSE RACKS
Plant Rubber & Asbestos Works, 537-539 Brannan Street, San Francisco.

FIRE-PROOF DOORS
Forderer Cornice Works, 269 Potrero Ave., San Francisco.
U. S. Metal Products Co., 330-10th St., San Francisco.
Kinnear Mfg. Co., represented in San Francisco by Pacific Materials Co., Underwood Bldg.
The J. G. Wilson Corporation, 621 North Broadway, Los Angeles.

FIRE SPRINKLERS—AUTOMATIC
Fire Protection Engineering Co., 67 Main St., San Francisco.
Grinnell Company of the Parific, 453 Mission St., San Francisco.
Independent Automatic Sprinkler Co., 72 Natoma St., San Francisco.
Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.

FIRE RETARDING PAINT
The Paraffine Companies, Inc., 34 First St., San Francisco.
Fire Retardent Products Co., 2838 Hannah St., Oakland. Cal.

FIXTURES—BANK, OFFICE, STORE, ETC.
Home Manufacturing Company, 543 Brannan St., San Francisco.
Mullen Manufacturing Co., 64 Rausch St., San Francisco.
C. F. Weber & Co., 985 Market St., San Francisco, and 210 N. Main St., Los Angeles, Cal.

FLOORING, BLOCK
Carter, Bloxonend Flooring Co., Kansas, Mo., represented on Pacific Coast by H. M. Holway, 1007 Hobart Building, San Francisco.

FLOOR CLIPS
Bull Dog Floor Clip Sales Co., 77 O'Farrell St., San Francisco, and 600 Metropolitan Bldg., Los Angeles.

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Carter, Bloxonend Flooring Co., Kansas, Mo., represented on Pacific Coast by H. M. Holway, 1007 Hobart Building, San Francisco.

FLOORS—TILE, CORK, ETC.
Mangrum & Otter, 827 Mission St., San Francisco.
Van Fleet-Freear Co., 61 New Montgomery St., San Francisco, and 420 S. Spring St., Los Angeles.

FLOOR VARNISH
Bass-Hueter and San Francisco Pioneer Varnish Works, 816 Mission St., San Francisco.
Fifteen for Floors, made by W. P. Fuller & Co., San Francisco.
Standard Varnish Works, Chicago, New York and San Francisco.
R. N. Nason & Co., San Francisco and Los Angeles.
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.
Murphy's Transparent Floor, Uhl Bros., San Francisco, Seattle, Portland, Oakland, Los Angeles.

FLOORS—HARDWOOD
Oak Flooring Manufacturers' Association of the United States, Aahland Block, Chicago, Ill.
Cadwallader, Gibson Co., 5th & Brannan St., San Francisco.
Parrott & Co., 320 California St., San Francisco.
Strable Hardwood Company, 511 First St., Oakland.
E. L. Bruce Co., Manufacturers, Memphis, Tenn.
White Bros., 5th and Brannan Sts., San Francisco.

FLOOR TREATMENT—HARDWOOD, COMPOSITION AND CONCRETE
Minwax Co., Inc., 22 Battery St., San Francisco and 653 S. Clarence St., Los Angeles.

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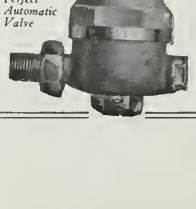
Hill, Hubbell & Company, 115 Davis St., San Francisco.
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.
FLUE LINING
California Brick Company, 604 Mission St., San Francisco.
FLUSH VALVES
Handy Self-Cleaning Flush Valve Co., 731 Folsom St., San Francisco.
FUEL OIL SYSTEMS
S. T. Johnson Co., 1337 Mission St., San Francisco.
S. F. Bowser & Co. Inc., 612 Howard St., San Francisco.
Wayne Tank and Oil Co., 631 Howard St., San Francisco.
FURNACES—WARM AIR
Mangrum & Otter, 827 Mission St., San Francisco.
Montague Range and Furnace Co., 826 Mission St., San Francisco.
FURNITURE—OFFICE, SCHOOL, CHURCH, ETC.
Home Manufacturing Company, 543 Brannan St., San Francisco.
C. F. Weber & Co., 985 Market St., San Francisco.
F. W. Wentworth & Co., 539 Market St., San Francisco.
W. & J. Sloane, 216 Sutter St., San Francisco.
Western States Seating Co., 133 Kearny St., San Francisco.
FURRING TILE (Burned Clay)
California Brick Company, 604 Mission St., San Francisco.
GARAGE HARDWARE
The Stanley Works, New Britain, Conn., Coast sale offices, San Francisco, Los Angeles and Seattle, Wash.
Richards-Wilcox Mfg. Co., Aurora, Ill., and Underwood Bldg., San Francisco.
GLASS
American Window Glass Co., represented by L. H. Butcher Co., 862 Mission St., San Francisco.
Cobbledick-Kibbe Glass Co., 666 Howard St., San Francisco.
Fuller & Goepp, 32 Page St., San Francisco, and Jackson, at Eleventh St., Oakland.
W. P. Fuller & Company, all principal Coast cities.
GRADING, WRECKING, ETC.
Dolan Wrecking & Construction Co., 1607 Market St., San Francisco.
GRANITE
Raymond Granite Co., Potrero Ave., and Division St., San Francisco.
GRAVEL AND SAND
Coast Rock & Gravel Co., Call-Post Bldg., San Francisco.
Del Monte White Sand, sold by Del Monte Properties Co., Crocker Bldg., San Francisco.
GYMNASIUM EQUIPMENT—LOCKERS, ETC.
Ellery Arms Co., 583 Market St., San Francisco.
George Trask, Durand Steel Locker Co., 76 Sacramento St., San Francisco.
HARDWARE
Joost Bros., agents for Russell & Erwin Hardware, 1053 Market St., San Francisco.
The Stanley Works, New Britain, Conn.; Coast sales offices, San Francisco, Los Angeles, and Seattle, Wash.
Corbin hardware, sold by Palace Hardware Co., 581 Market St., San Francisco.
Richards-Wilcox Mfg. Co., Aurora, Ill., Ewing-Lewis Co., 626 Underwood Bldg., San Francisco.
Vonnegut hardware, sold by Abeel-Jensen Co. Call Bldg., San Francisco.
HARDWOODS
White Brothers, 5th and Brannan Streets, San Francisco.
HEATING AND VENTILATING CONTRACTORS
Atlas Heating and Ventilating Company, Inc., Fourth and Freelon Sts., San Francisco.
Alex Coleman, 706 Ellis St., San Francisco.
Gilley-Schmid Company, 198 Otis St., San Francisco.
Hateley & Hateley, Mitau Bldg., Sacramento.
Mangrum & Otter, 827-831 Mission St., San Francisco.
Lawson & Drucker, 450 Hayes St., San Francisco.
Carl T. Doell, 467 21st St., Oakland.
Luppen, Hawley & Thing, 906 7th St., Sacramento.
William F. Wilson Co., 328 Mason St., San Francisco.
W. H. Picard, 5656 College Ave., Oakland.
Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.
Scott Company, 243 Minna St., San Francisco.
HEATING & VENTILATING EQUIPMENT
W. S. Haines & Co.'s steam specialties. O. M. Simmons Company, 115 Mission St., San Francisco.
Hulting, Hurst & Hulting, representing Jas. P. Marsh Co., Monadnock Bldg., San Francisco.
Illinois Engineering Co., Pacific Bldg., San Francisco.
Tiltz Engineering & Equipment Co., 470 Monadnock Bldg., San Francisco.
Williams Radiator Company, 5 Monadnock Bldg., Arcade, San Francisco.
HEATERS, WATER-GAS, ELECTRIC, ETC.
Pittsburg Water Heater Company, 478 Sutter St., San Francisco.
Rudd Automatic Water Heater, sold by Rudd Heater Company, 431 Sutter St., San Francisco.
HEATERS, GAS GRATES, RADIATORS, ETC.
General Gas Light Company, 768 Mission St., San Francisco.



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Ra-Do Fumeless Gas Radiators, Potter Radiator Corporation, 478 Sutter St., San Francisco
Humphrey Radiantfire, sold by Rudd Heater Company, 431 Sutter St., San Francisco.
Williams Radiator Company, "Gas Steam Radiators," 5 Monadnock Building, Arcade, San Francisco.

HOLLOW BUILDING TILE (Burned Clay)
California Brick Company, 604 Mission St., San Francisco.

HOLLOW TILE BLOCKS
Cannon & Co., plant at Sacramento; 77 O'Farrell St., San Francisco.
California Brick Company, 604 Mission St., San Francisco.
Gladding, McBean & Co., San Francisco, Los Angeles, Oakland and Sacramento.
Los Angeles Pressed Brick Co., Frost Bldg., Los Angeles.

HOSE—UNDERWRITERS UNLINED LINEN—RUBBER
Plant Rubber & Asbestos Works, 537-539 Brannan Street, San Francisco.

HOSPITAL FIXTURES
Mott Company of California, 553 Mission St., San Francisco.

HOSPITAL SIGNAL SYSTEMS
Chicago Signal Co., represented by Garnett Young & Co., 612 Howard St., San Francisco.
Holtzer-Cabot Electric Company, San Francisco Branch, 408 Claus Spreckles Building.

ICE MAKING MACHINERY
Cyclops Iron Works, 837 Folsom St., San Francisco.

INCINERATORS
The Incinerite, sold by M. E. Hammond, Mezzanine, Pacific Building, San Francisco.

INDUSTRIAL LIGHTING EQUIPMENT
Westinghouse Electric and Mfg. Co., East Pittsburgh, Pa., and First National Bank Building, San Francisco.

INGOT IRON
"Armco" brand, manufactured by American Rolling Mill Company, Middletown, Ohio, and 10th and Bryant Sts., San Francisco.

INSPECTIONS AND TESTS
Robert W. Hunt & Co., 251 Kearny St., San Francisco.

INSULATION—CORK
Van Fleet-Freear Co., Sharon Bldg., San Francisco.

INSURANCE BROKERS
William Healey & Son, Crocker Bldg., San Francisco.

JAIL EQUIPMENT
Ralston Iron Works, 20th and Indiana Sts., San Francisco.

LAMP POSTS, ELECTROLIERS, ETC.
J. L. Mott Iron Works, 553 Mission St., San Francisco.

LANDSCAPE ARCHITECT
Emerson Knight, 704 Market St., San Francisco.

LANDSCAPE GARDENERS
MacRorie-McLaren Co., 514-516 Phelan Bldg., San Francisco.

LATHING AND PLASTERING
MacGruer & Simpson, 226 Tehama St., San Francisco.
A. Knowles, Call-Post Bldg., San Francisco.

LATHING MATERIAL—WIRE,ETC.
Buttonlath Manufacturing Co., Los Angeles and 207 Balboa Bldg., San Francisco.
Pacific Materials Co., 525 Market St., San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco
Truscon Steel Co., 709 Mission Street, San Francisco.
Wickwire Spencer Steel Corporation, 111 Townsend St., San Francisco.

LEATHER MATS
Leather Mat Mfg. Co., 340 Sansome St., San Francisco.

LIGHT, HEAT AND POWER
Great Western Power Company, Stockton St., near Sutter, San Francisco.
Pacific Gas & Electric Co., Sutter St., San Francisco.

LIGHTING FIXTURES
Benjamin Electric Mfg. Co., New York, Chicago and San Francisco,
D. Dierssen Co., 30 Davis Street, San Francisco. Distributors Solar-Lite fixtures.
Thomas Day Company, Mission, near Third St., San Francisco, and Oakland.
Electric Appliance Company, 869 Mission St., San Francisco.
Roberts Mfg. Co., 663 Misaion St., San Francisco.

LIMESTONE, INDIANA
Indiana Limestone Quarrymen's Association, Box 770, Bedford, Indiana.

LINOLEUM
D. N. & E. Walter & Co., 562 Mission St., San Francisco.
The Paraffine Companies, factory in Oakland; office, 34 First St., near Market, San Francisco.
W. & J. Sloane, 216 Sutter St., San Francisco.

LUMBER
Hart-Wood Lumber Co., Fifth and Berry Sts., San Francisco.
Pacific Manufacturing Company, San Francisco, Oakland, Los Angeles and Santa Clara.
Pope & Talbot, foot of Third St., San Francisco.
Santa Fe Lumber Co., 16 California St., San Francisco.
Sunset Lumber Company, First and Oak Sts., Oakland.
White Bros., 5th and Brannan Sts., San Francisco.

MAIL CHUTES
American Mailing Device Corp., represented on Pacific Coast by Waterhouse-Wilcox Co., 523 Market St., San Francisco.

MANTELS—WOOD, TILE, ETC.
Mangrum & Otter, 827-831 Mission St., San Francisco.

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MANUAL TRAINING EQUIPMENT
Richards-Wilcox Mfg. Co., Ewing-Lewis Co., 626 Underwood Bldg., San Francisco.

MARBLE
American Marble and Mosaic Co., 25 Columbus Square, San Francisco.
Ray Cook Marble Company, foot of Powell St., Oakland.
Joseph Musto Sons, Keenan Co., 535 N. Point St., San Francisco.
Vermont Marble Co., Coast branches, San Francisco, Portland and Tacoma.
Tompkins-Kiel Marble Company, 505 Fifth Ave., New York; also Chicago, Philadelphia and San Francisco.
Columbia Marble Co., 413 Rialto Bldg., San Francisco.

MATS, LEATHER
Leather Mat Manufacturing Co., 340 Sansome St., San Francisco.

METAL DOORS AND WINDOWS
Waterhouse-Wilcox Co., Inc., 523 Market St., San Francisco.
U. S. Metal Products Co., 330 Tenth St., San Francisco.

METAL FURNITURE
Forderer Cornice Works, 269 Potrero Ave., San Francisco.

METAL TOILET—PARTITIONS
John R. Steffens-Lomax Co., 951 Monadnock Bldg., San Francisco.

MILL WORK
Pacific Manufacturing Company, San Francisco, Los Angeles, Oakland and Santa Clara.
National Mill and Lumber Co., San Francisco and Oakland.
Lannom Bros. Mfg. Co., 5th and Magnolia Sts., Oakland.

NOTARY PUBLIC
William Healey & Son, 208 Crocker Bldg., San Francisco.

OIL BURNERS
Bunting Iron Works, 1215 First Nat. Bank Bldg., San Francisco.
Coen Co., Inc., 112 Market St., San Francisco
Fess System Co., 220 Natoma St., San Francisco.
S. T. Johnson Co., 1337 Mission St., San Francisco.
G. E. Witt Co., 862 Howard St., San Francisco.
W. S. Ray Mfg. Company, Rialto Bldg., San Francisco, and 2206 San Pablo Ave., Oakland.
Rotary Oil Burner Company, 159 Twelfth St., Oakland.

OIL STORAGE AND DISTRIBUTING STATIONS
S. F. Bowser & Co., Inc., 612 Howard St., San Francisco.
S. T. Johnson Co., 1337 Mission St., San Francisco.
Wayne Oil Tank & Pump Co., 631 Howard St., San Francisco; 830 S. Los Angeles St., Los Angeles.

ORNAMENTAL IRON AND BRONZE
California Artistic Metal and Wire Co., 349 Seventh St., San Francisco.
Federal Ornamental Iron and Bronze Co., 16th St., and San Bruno Ave., San Francisco.
Michel & Pfeffer Iron Works, 1415 Harrison St., San Francisco.
Palm Iron & Bridge Works, Sacramento.
C. J. Hillard Company, Inc., 19th and Minnesota Sts., San Francisco.
Schrader Iron Works, Inc., 1247 Harrison St., San Francisco.

OVERHEAD CARRYING SYSTEMS
Richards-Wilcox Mfg. Co., Aurora, Ill., and Underwood Bldg., San Francisco.

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The Paraffine Companies, Inc., 34 First St., San Francisco.
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Hill, Hubbell & Company, 115 Davis St., San Francisco.
Nitrose Paint, Clifford W. L. Day, Pacific Coast representative, 543 Clay St., San Francisco.
U. S. Elaterite Products Co. of the Pacific, American National Bank Building, San Francisco.

PAINTING, TINTING, ETC.
I. R. Kissel, 1747 Sacramento St., San Francisco.
D. Zelinsky & Sons, San Francisco and Los Angeles.
The Tormey Co., 681 Geary St., San Francisco.
A. Quandt & Son, 374 Guerrero St., San Francisco.

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Magner Bros., 414-424 Ninth St., San Francisco.
Bass-Hueter Paint Co., Mission, near Fourth St., San Francisco and all principal Coast cities.
R. N. Nason & Company, San Francisco, Los Angeles, Portland and Seattle.
W. P. Fuller & Co., all principal Coast cities.
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The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.
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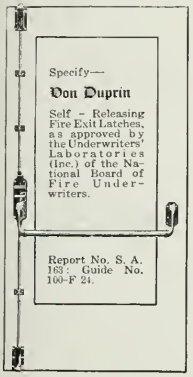
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MacGruer & Simpson, 266 Tehama St., San Francisco.

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Alex Coleman, 706 Ellis St., San Francisco.
Gilley-Schmid Company, 198 Otis St., San Francisco.
Doell, Carl T., 467 21st St., Oakland.
Hateley & Hateley, Mitau Bldg., Sacramento.
Scott Co., Inc., 243 Minna St., San Francisco.
Wm. F. Wilson Co., 328 Mason St., San Francisco.
Luppen, Hawley & Thing, 906 7th St., Sacramento.
W. H. Picard, 5656 College Ave., Oakland.

PLUMBING SUPPLY HOUSES
Crane Company, all principal coast cities.
Haines, Jones & Cadbury Co., 857 Folsom St., San Francisco.
H. Mueller Manufacturing Company, 635 Mission St., San Francisco.
Holbrook, Merrill & Stetson, 64 Sutter St., San Francisco.
J. L. Mott Iron Works, D. H. Gulick, selling agent, 553 Mission St., San Francisco.
Pacific Sanitary Manufacturing Co., 67 New Montgomery St., San Francisco.
West Coast Porcelain Manufacturers, Oceanic Bldg., San Francisco.

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Chicago Pump Co., represented by Garnett, Young & Co., 612 Howard St., San Francisco.
Simonds Machinery Co., 117 New Montgomery St., San Francisco.
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Byron Jackson Iron Works, 55 New Montgomery St., San Francisco.
Tokheim Oil Tank & Pump Company, 806 Sharon Building, San Francisco.

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Electric Appliance Company, 809 Mission St., San Francisco.

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Edward L. Soule, Rialto Bldg., San Francisco.
Badt-Falk & Co., Call Bldg., San Francisco.
Judson Iron Works, San Francisco and Oakland.
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Pacific Coast Steel Co., Rialto Bldg., San Francisco.
Truscon Steel Co., 527-10th St., San Francisco.

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Johns-Manville Inc., of California, 500 Post St., San Francisco.
Western Asbestos Magnesia Company, 25 South Park, San Francisco.

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Del Monte White Sand, Del Monte Properties Co., 401 Crocker Bldg., San Francisco.

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- Bass-Hueter Paint Company, all principal Coast cities.
- Cabot's Creosote Stains, sold by Pacific Bldg., Materials Co., 525 Market St., San Francisco.
- Fuller's Pioneer Shingle Stains, made by W. P. Fuller & Co., San Francisco.
- The Paraffine Companies, San Francisco, and principal Coast Cities.

SHUTTERS—ROLLING, FIRE, STEEL, WOOD
- J. G. Wilson Corp, 621 North Broadway, Los Angeles.

SIGNALING & PROTECTIVE SYSTEMS
- Holtzer-Cabot Electric Co., 125 Armory St., Boston; 408 Claus Spreckels Building, San Francisco.
- Garnett, Young & Co., 612 Howard St., San Francisco.

SINKS—COMPOSITION
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STEEL HEATING BOILERS
- Birchfield Boiler Company, Tacoma, Washington.
- Kewanee Boiler, factory branch, Exposition Building, San Francisco.

STEEL TANKS, PIPE, ETC.
- Ocean Shore Iron Works, 55 Eighth St., San Francisco.
- S. T. Johnson Co., 1337 Mission St., San Francisco.

STEEL AND IRON—STRUCTURAL
- Central Iron Works, 621 Florida St., San Francisco.
- Herrick Iron Works, 18th and Campbell Sts., Oakland.
- Michel & Pfeffer Iron Works, 1415 Harrison street, San Francisco.
- Judson Mfg. Co., 817-821 Folsom St., San Francisco.
- Mortenson Construction Co., 19th and Indiana Sts., San Francisco.
- Pacific Rolling Mills, 17th and Mississippi Sts., San Francisco.
- Palm Iron & Bridge Works, Sacramento.
- Ralston Iron Works, 20th and Indiana streets. San Francisco.
- Schrader Iron Works, Inc., 1247 Harrison St., San Francisco.
- Western Iron Works, 141 Beale St., San Francisco.

STEEL LUMBER
- The General Fireproofing Company, 20 Beale Street, San Francisco

STEEL ROLLING DOORS
- Kinnear Rolling Steel Doors, sold by Pacific Building Materials Co., Underwood Bldg., San Francisco.
- Wilson Rolling Steel Doors, the J. G. Wilson Corporation, 621 North Broadway, Los Angeles and Waterhouse Wilcox Co., 523 Market St., San Francisco.

STEEL SASH
- Bayley-Springfield solid steel sash, sold by Pacific Materials Co., 525 Market St., San Francisco.
- "Fenestra" Solid Steel Sash, manufactured by Detroit Steel Products Co., factory sales office, 251 Kearny St., San Francisco.
- Michel & Pfeffer Iron Works, 1415 Harrison street, San Francisco.
- U. S. Metal Products Company, 330 Tenth St., San Francisco.
- Truscon Steel Company, 709 Mission St., San Francisco.

STEP AND WALK BRICK
- California Brick Company, 604 Mission St., San Francisco.
- United Materials Co., Sharon Bldg., San Francisco.

STONE
- Indiana Limestone Quarrymen's Association, Box 770, Bedford, Indiana.

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- John R. Steffens-Lomax Co., 951 Monadnock Bldg., San Francisco.

STUCCO, COMPOSITION
- California Stucco Co., Hobrook Building, San Francisco.
- Hoff Magnesite Co., San Francisco. Miller & Alf, 337 Monadnock Bldg., San Francisco, general agents.

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H. Mueller Mfg. Co., 635 Mission street, San Francisco.
Kennedy Valve Mfg. Co., 23-25 Minna street, San Francisco.

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Murphy's Varnish, Uhl Bros., San Francisco, Seattle, Portland, Oakland, Los Angeles.

VENEERS
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"Satinette," Standard Varnish Works, 55 Stevenson St., San Francisco.
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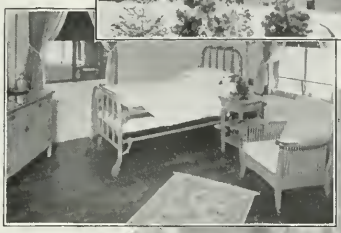

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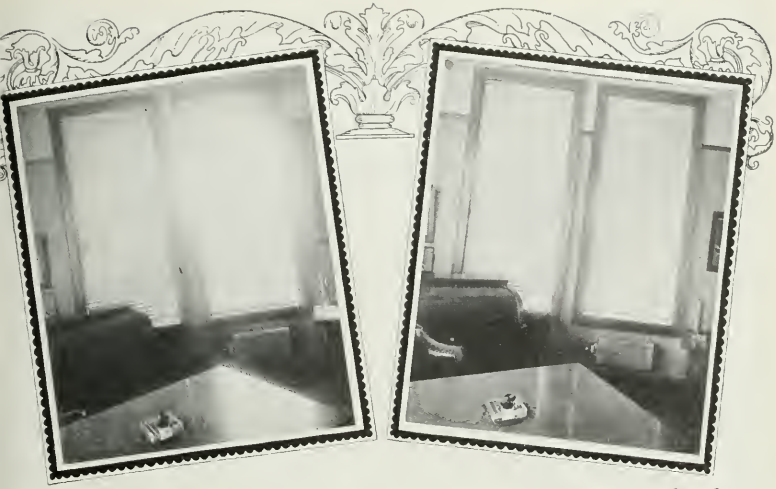

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Note in the righthand photograph how daylight is evenly distributed over the entire room; how glare is eliminated by reflecting and diffusing direct light rays so that only subdued, restful daylight prevails. No other window equipment will so effectively control the distribution of daylight.

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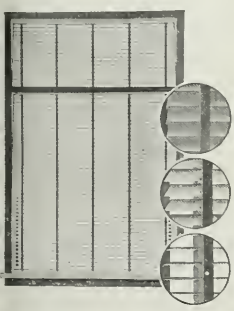

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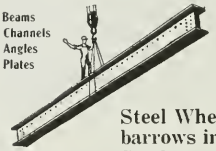

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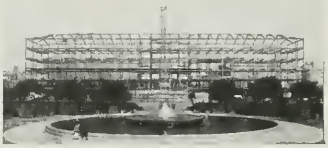

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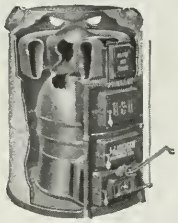

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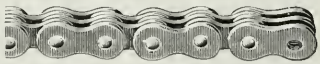

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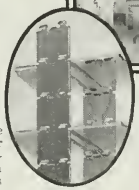

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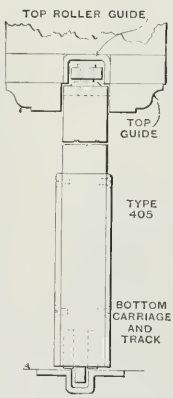

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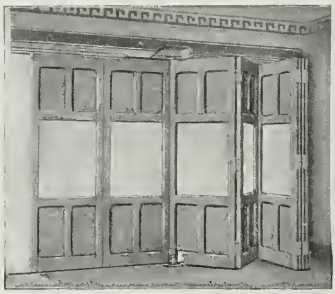

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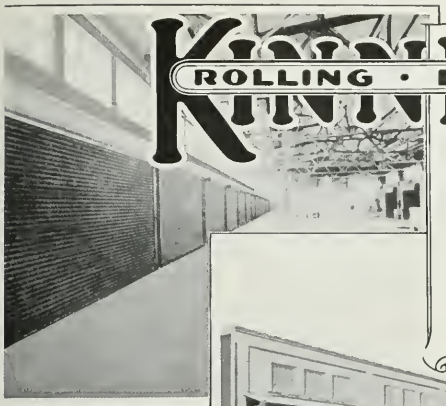

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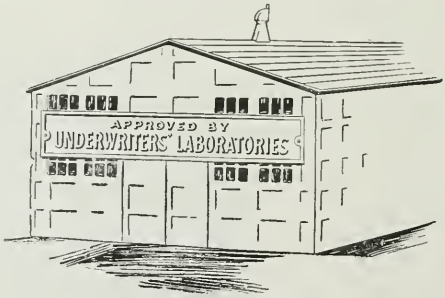

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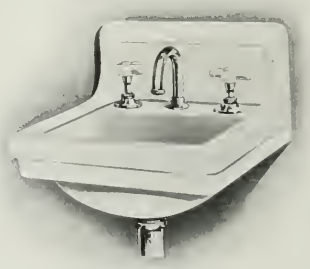

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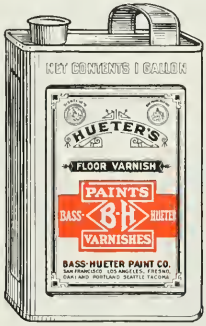

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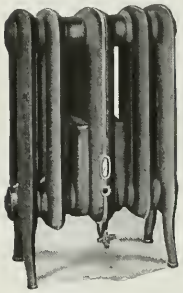

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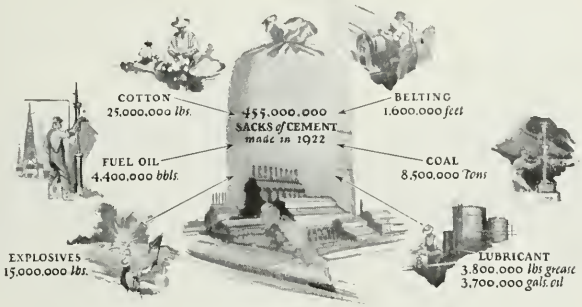

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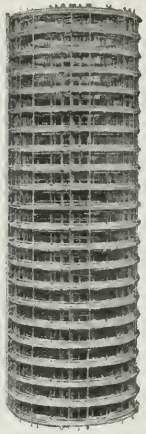

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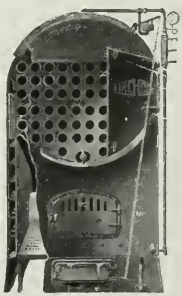

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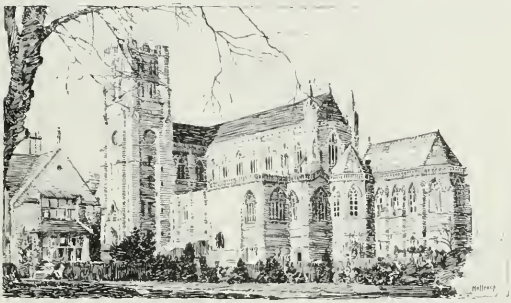

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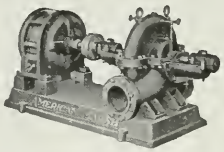

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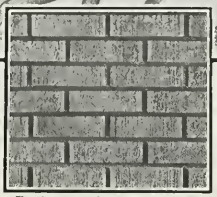

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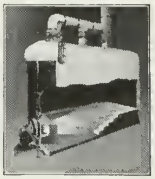

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Published Monthly by
THE ARCHITECT and ENGINEER *Inc.*
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The Architect

THE Architect is he who designs and supervises the erection of buildings and kindred structures.

Society rightly demands that its buildings be not ugly; the life of the community demands that none be unsafe or dangerous to health; social economy demands that they be not wasteful nor ill-suited to the purpose for which they are created.

Therefore the Architect must have a fundamental knowledge of architecture as an expression of beauty, of structural forms and materials, and of practical design.

In the practice of his art the integrity of the Architect must be above question, because his every operation involves the financial interests of others than himself.

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THE
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MAY
1923

VOL LXXIII.
No. 2

Concrete and Creative Architecture

By WM. LEE WOOLLETT, Architect

IN creating a new art, a new law is not established. The principles of orderly arrangement of the aesthetic values are not jeopardized but vindicated. When a new material for building arrives on the arena of human endeavor there is not a general abdication of the theses upon which all good architecture of the past has builded itself. Rather there is a gathering of the clans; "analysis" and "research" gird themselves in respect to the laws of building as they have been applied in all the ages. Out of this advent of a new building material comes finally—after many a mis-application of the "eternal laws"—a true solution of the problem—an acceptable adaptation of the new material to the building use to which it is assigned.

Good architecture results, not from blindly copying the ancients but from the nice balancing of the form texture and color of building materials to their structural or static values. A porous, pliable or crumbling stone is a poor building material, no matter what its charm of color or texture. An ill-shaped moulding of stone, no matter what its charm of color and texture or its strength and durability, is not the proper thing to build into a structure when beauty is required; and so we see that down through the ages there has developed a correspondence of values, a recognized relation between structural use to which a material is put, and the color and the form and texture.

We do not build costly precious colors into buildings used for menial purposes. We do use refined and elegant mouldings in marble and bronze, for the building of temples and churches and homes. We do use wrought iron and rough-hewn stone and great husky mouldings of granite or sandstone in a prison or castle wall. A Gothic church hewn out of solid rock, like the rock-cut tombs of the Nile, would have no charm, no matter how wonderfully wrought, because the power of balanced forces would not be there. The "structural aesthetics" of the building would be nil.

The structural aesthetic value of the column and lintel, the structural aesthetic value of the arch, round and pointed, represent a series

of conclusions as to structure with which civilized man has toyed now for some thousands of years.

Presto! There is a new building material—reinforced concrete! This new material spans spaces which make the spaces between the Greek temple columns look very small; it arches itself over rivers and rises into the air until the birds go up to meet its airy towers; it dams the torrents in bulk equaling the bulk of the Pyramids.

Its ancient prototype we do not know.

GRAUMAN'S METROPOLITAN THEATER, LOS ANGELES
William Lee Woollett, Architect
Rough concrete, bronze crudely fashioned, Panne velvet hangings and murals on rough walls are elements of this composition

Like the solid rock and the granite and sand stones of the Nile, this new material will in due time be shaped, formed and colored to meet the aesthetic requirements of the age in which it plays a part so important.

And so, when this material is so shaped and adjusted, and the building in which it plays a part is completely in rhythm with itself, we shall have a new phase of the building art. And then, if beside a new material, a new philosophy, a different basis of thought is ripening in the world, we shall find these other new elements asserting themselves in the buildings.

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Symbols are the easiest way for builders to express the thoughts which dominate them. Therefore, we find in architecture a more or less highly expressive symbolism depending on the point of view of the builder. The Gothic architecture of the Christian Church is very full of symbolism; the architecture of the modern dissenting church is almost devoid of symbolism. The superficial styles of Napoleon and Louis Eighth are quite empty, and modern French is dead as regards this rich and eloquent element.

GRAUMAN'S METROPOLITAN THEATER, LOS ANGELES
William Lee Woollett, Architect
Exedra and grille near proscenium arch, all constructed of concrete

But there is a deeper and a more scientific way to express the philosophy of the builder—in the structural aesthetics, i. e., in the relation of the static forces to the forms employed. When you undercut a bit of marble moulding to the point where a hair deeper would make the mould look weak and inadequate, but you leave it just at the point where it looks strong, yet refined and elegant, you are a craftsman of no mean order. You are drawing a line on your building which must in weight and color hold its proper place in the computation of the whole. You are estimating the quality of your material as to ultimate strength, fria-

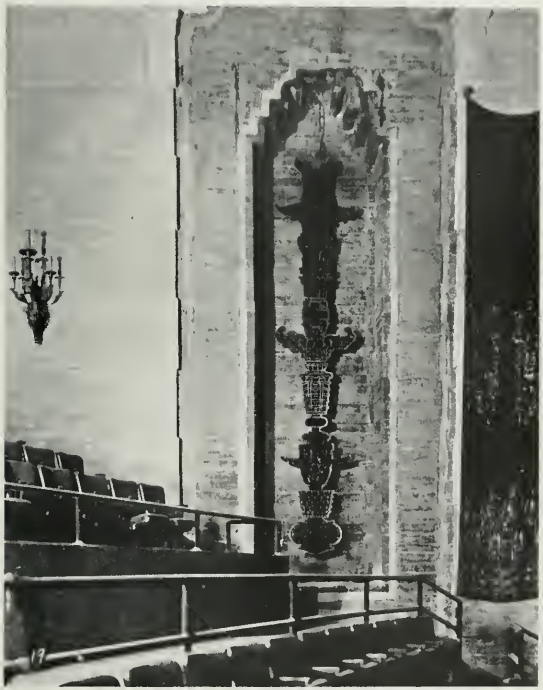
bility or cohesive co-efficient. As well, you are labeling the particular block of marble in such a manner as to disclose its true function as a part of the structure, i. e., something which has been put together with human hands, one stone upon another—and the very act of building must be honored in the final result. That is why the Greeks preferred to build their temple columns in drums rather than from single pieces of stone. The Greeks rarely used excessively large pieces of stone, as did the earlier Mycenians.

GRAUMAN'S METROPOLITAN THEATER, LOS ANGELES
William Lee Woollett, Architect
Side wall over balcony

The philosophy of the builder must be expressed in these structural values. Such values have to do also with the science of numbers. To illustrate: The complex, highly-educated mind will see his sequences (egg and darts, lintels, promenades, beam spaces, etc.) in geometrical and arithmetical ratio, whereas the primitive mind will see his sequence in much the same way as the elemental man saw them, through the rule of three.

In building the geometric and mathematical sense of our civilization into our buildings, we must remember that just at present the average

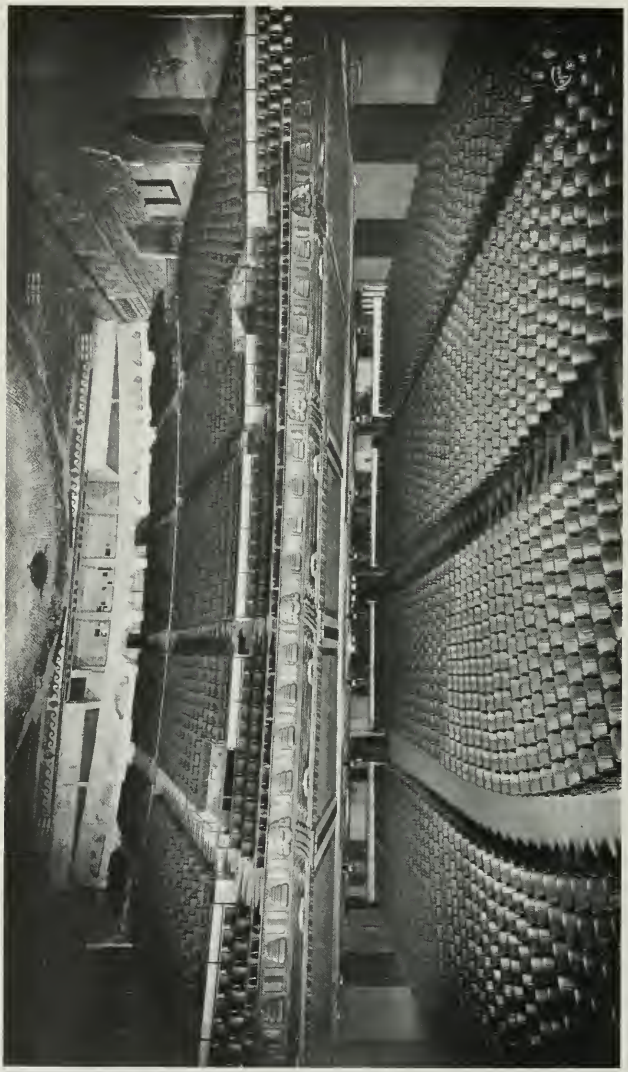
mind in America, for instance, is far below the average mind of those selected groups of the past, like the Greeks, whose intellectual capacity is now gauged by what we call good architecture. In our day the masses play a considerable part in selecting, judging and creating architecture, whereas in the great architectural periods in the past the forces of creation were limited to a comparative few. In the Gothic period, for instance, a priesthood limited in number dominated the lay mind in every way and pleased itself only as regards the building of the period.



GRAUMAN'S METROPOLITAN THEATER, LOS ANGELES
William Lee Woollett, Architect
Niche and Totem pole in black leaded glass

In all ages of the past—I am speaking now of great epochs and not of isolated examples—except perhaps in the time of Grecian supremacy, the system of authority has been so concentrated as to enable a collective few to dominate the aesthetic impulses.

I have often heard the harmonies of Liszt, Chopin, Wagner and others variously rendered. One may recognize the author if one has merely a musical memory, and of course the rendering always differs according to the personality and intelligence of the performer. In like manner I have seen the beautiful capital of the Choragic monument



INTERIOR, GRAUMAN'S METROPOLITAN THEATER
WILLIAM LEE WOOLLETT ARCHITECT

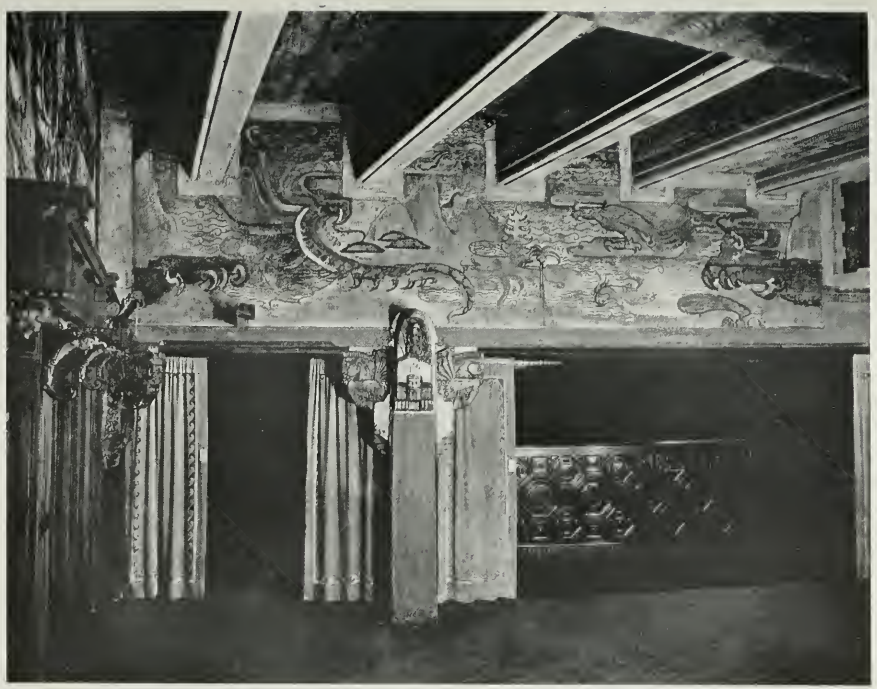
"variously rendered." I have never seen two copies of this capital which were sufficiently alike as to defy my powers of analysis, and I have often thought in respect to this particular beautiful specimen of Greek art, that with no Greek to carve—and no Greek to appraise the results—it is highly improbable that a work of pure Greek architecture could be created at this time. The impossibility of creating or recreating any dead art is as palpable as is the impossibility of creating in duplicate any master painter's or master sculptor's work. The act of creating and copying is essentially different. A copy in the realm of art is recognized as not having the true value of an original. By the same token, a work of art or architecture, worked up in the spirit of a bygone age, is minus, perforce, the essential art values of a creative work.

The creative in architecture is the element which above all others signalizes the artisan spirit, as opposed to the mere commercial or mechanical act of building. It is the artisan spirit which recreates out of suggestive forms of dead and bygone ages new and living forms, thus detonating ideas and ideals. It is the artisan rather than the engineer or master builder who first sees in a new material an inspiration to modify the technique of aesthetics in building. He has learned to employ certain forms in older and tried materials. Out of the pioneer spirit of the artisan we see new buds and flowers of beauty growing out of every art, to meet the spirit of the age in which he lives.

And so when one says to the modern architect: "Why do you blend motifs from the different historical styles of architecture?" the answer is: "These old forms are beautiful and suggestive of every phase of human thought. These forms are the "language" of the architect. He has no other. In designing a building with the idea that the building shall tell the story of its use or occupancy, and especially in attempting to tell this story in a new building material, the language of form utilized is necessarily the language in which all architectural form has spoken in the past. It would be an unforgivable imposition, nevertheless, to cast an exact copy of a Greek temple out of concrete or a Gothic cathedral or a Colonial house in this new material. Some measure of intelligence must be exercised in adaptation—some imagination spent—some spirit of play in evidence. The building of these old forms in concrete would be absolutely dead and repulsive without the application of the adaptive spirit of the artisan. We can well imagine that in using concrete, to tell the tale of "power" and "dignity," unbroken wall surfaces in this basic material would be sufficient, perhaps, if in some subtle way to these areas should be added a hint of the ancient architecture. To spell the refinement and cultural values to which we are heir, the balanced fineness of Greek moulds and columns will suffice. To detonate the playful spirit, a whif of Louis XIV or Churrigueresque—to background the whole with a vague suggestion of paganism by employing some simple motif of Tuscan or Aztec—to tell, in short, the story of the building in a language of abstract and subconscious values, which are inherent in the architecture of the past. These motifs used in juxtaposition to each other and as antithesis for each other, stimulate the intellect, move the emotions and renew in man the spirit of the dead, but still daring and pioneering past.

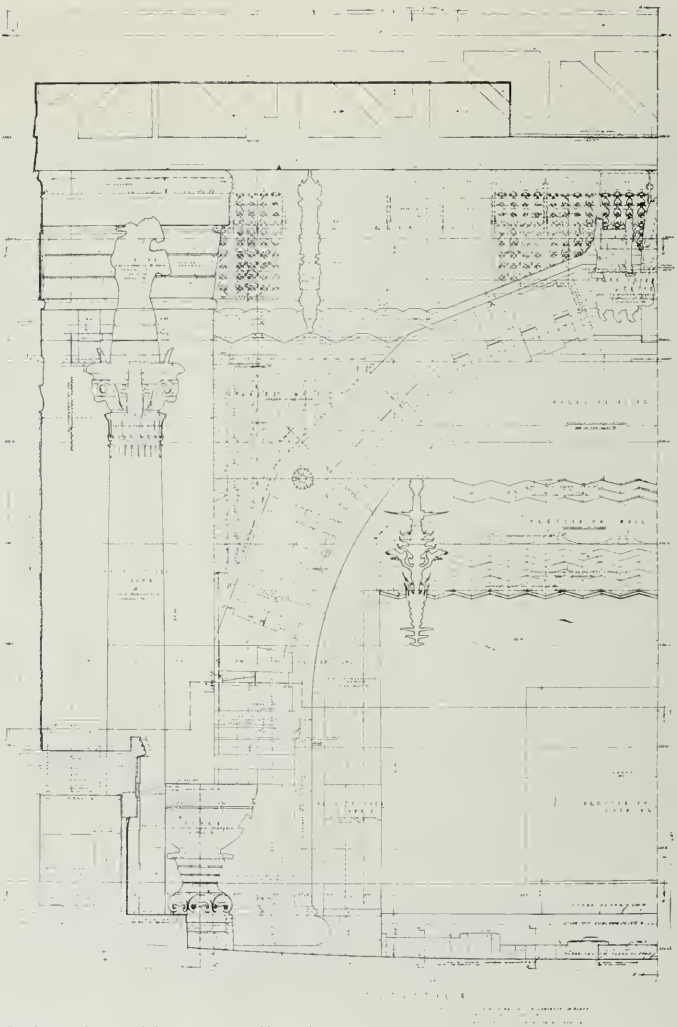
This is one way of viewing creative architecture.

LOBBY, GRAUMAN'S METROPOLITAN THEATER
WILLIAM LEE WOOLLETT ARCHITECT



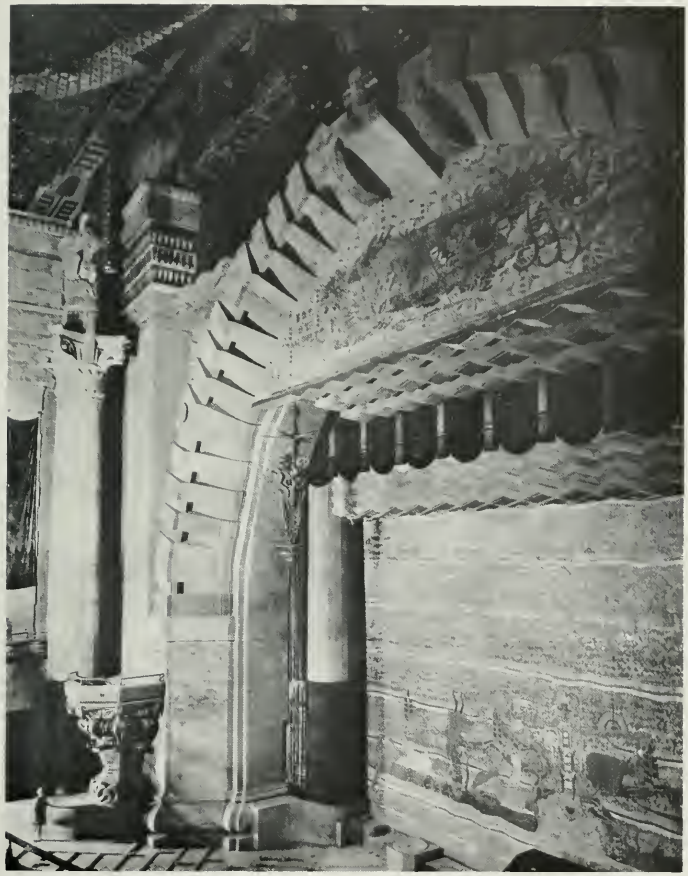
Murals done on rough concrete. Ornaments on columns are of concrete cast in place.

FOYER, GRAUMAN'S METROPOLITAN THEATER
WILLIAM LEE WOOLLETT ARCHITECT



This theater is provided with a movable orchestra platform, electrically controlled, and the organ console is also disappearing in a separate compartment.

DETAILS PROSCENIUM ARCH, GRAUMAN'S THEATER
WILLIAM LEE WOOLLETT ARCHITECT



Note open trusses, beam decorated by mural in the support of organ grille

PROSCENIUM ARCH, GRAUMAN'S METROPOLITAN THEATER
WILLIAM LEE WOOLLETT ARCHITECT

DETAIL PROSCENIUM ARCH, GRAUMAN'S METROPOLITAN THEATER
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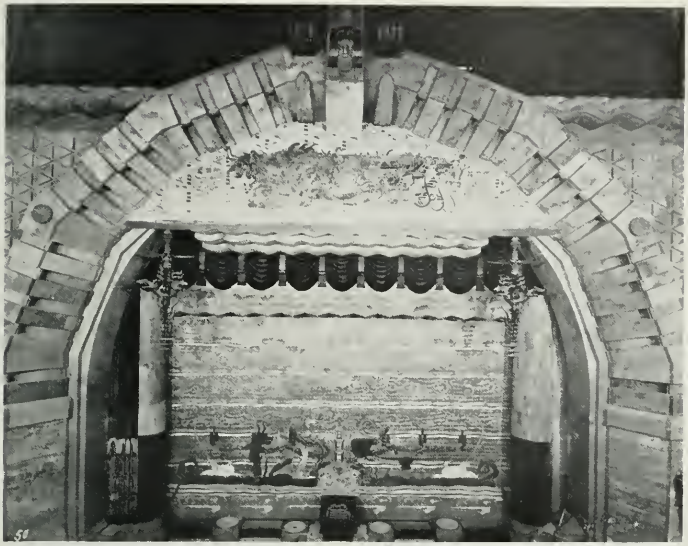
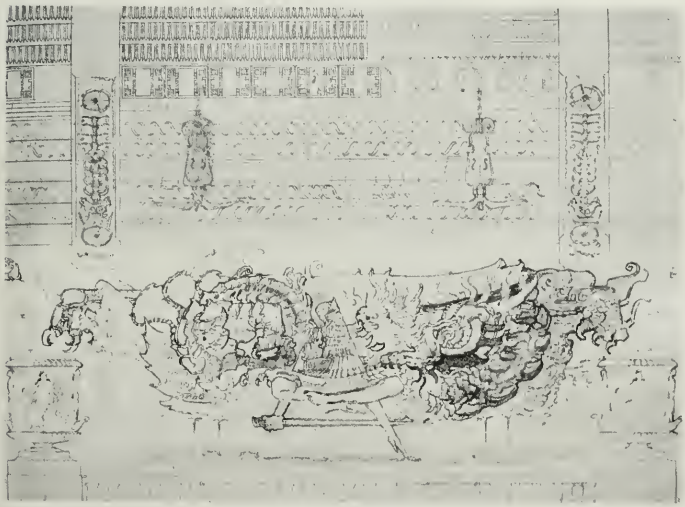


PROSCENIUM ARCH, GRAUMAN'S METROPOLITAN THEATER
William Lee Woollett, Architect

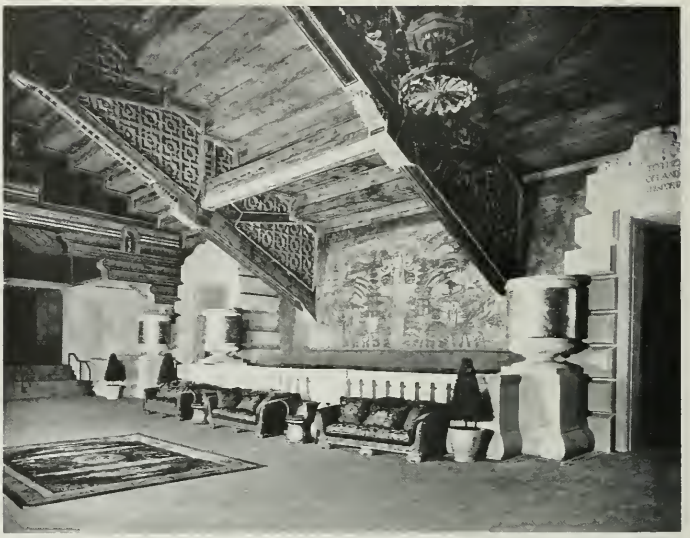


SKETCH FOR MURAL, "NOT BY MIGHT, NOT BY POWER," PANEL OVER PROSCENIUM ARCH
William Lee Woollett, Architect

Concrete cast in place, both ornamental and structural

MAIN FLOOR FOYER, GRAUMAN'S METROPOLITAN THEATER
WILLIAM LEE WOOLLETT ARCHITECT

MEZZANINE, GRAUMAN'S METROPOLITAN THEATER
WILLIAM LEE WOOLLETT ARCHITECT



MEZZANINE, GRAUMAN'S METROPOLITAN THEATER
William Lee Woollett, Architect

MURAL, "THE SAND DEMON," GRAUMAN'S METROPOLITAN THEATER
William Lee Woollett, Architect

ENTRANCE TO BALCONY, GRAUMAN'S METROPOLITAN THEATER
WILLIAM LEE WOOLLETT ARCHITECT

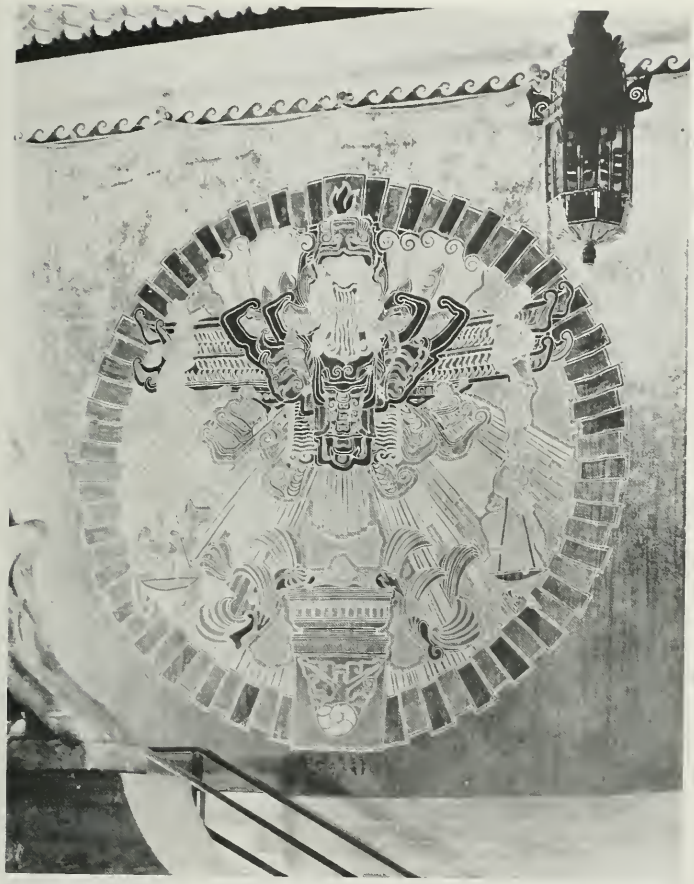
Procrastination, "the Spirit of the Building." By the Architect. This object has the body of a glorified variety of the garden slug, which cannot get you anywhere, and claws which may hold you.

GRAUMAN'S METROPOLITAN THEATER
WM. LEE WOOLLETT ARCHITECT

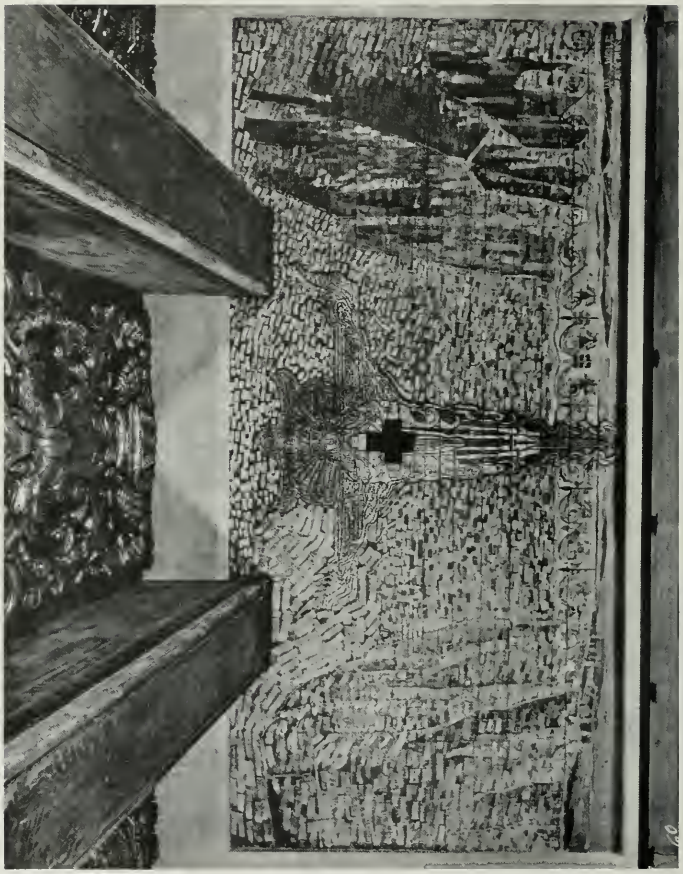
SIDE WALL OVER BALCONY, GRAUMAN'S METROPOLITAN THEATER
WILLIAM LEE WOOLLETT ARCHITECT

Lion and reptile combined cast in solid concrete and finished in metal and color. On wall is seen Panne velvet hanging, showing the sarcophagus of "the unknown dead" and the scales where the good and evil are weighed.

GRAUMAN'S METROPOLITAN THEATER
WM. LEE WOOLLETT ARCHITECT



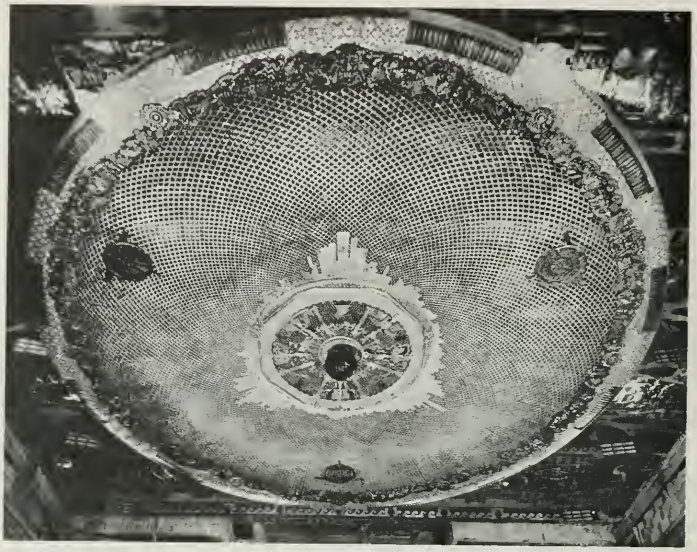
"MR. COD" PANEL IN PANNE VELVET
DESIGNED BY THE ARCHITECT
EXECUTED BY E. J. MACKEEVER



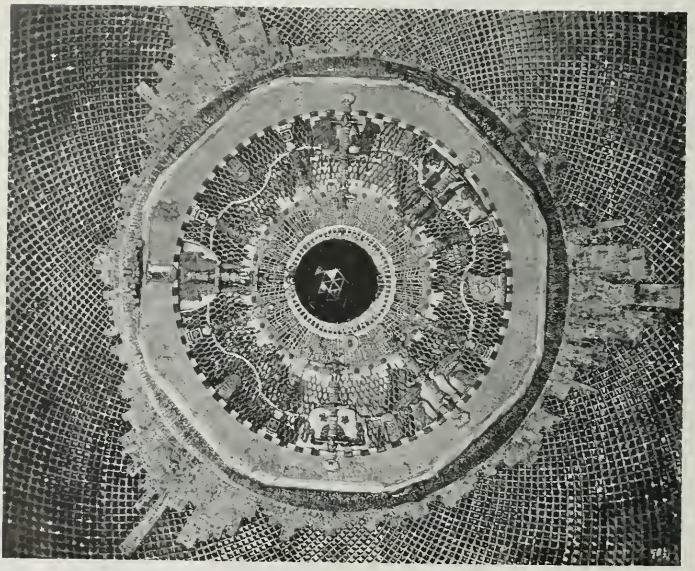
Designed by the Architect and painted by Paul K. Mays

CENTER PANEL OF TRYPTIC MURAL, MAIN FOYER, GRAUMAN'S METROPOLITAN THEATER

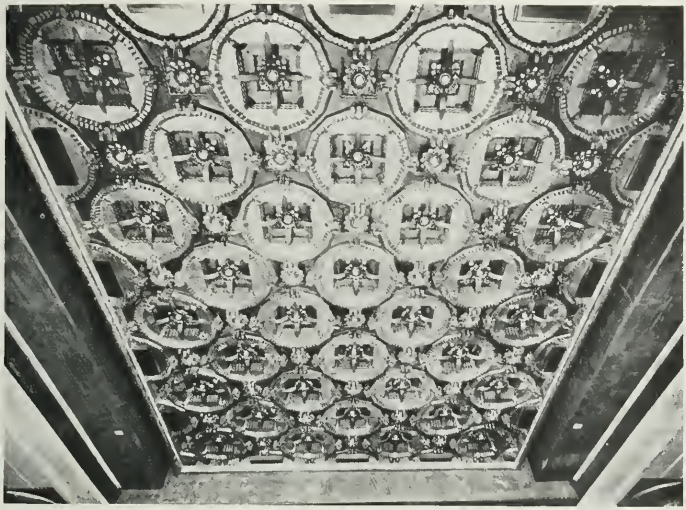
PENDANTS, CEILING OF AUDITORIUM, GRAUMAN'S METROPOLITAN THEATER
WILLIAM LEE WOOLLETT, ARCHITECT



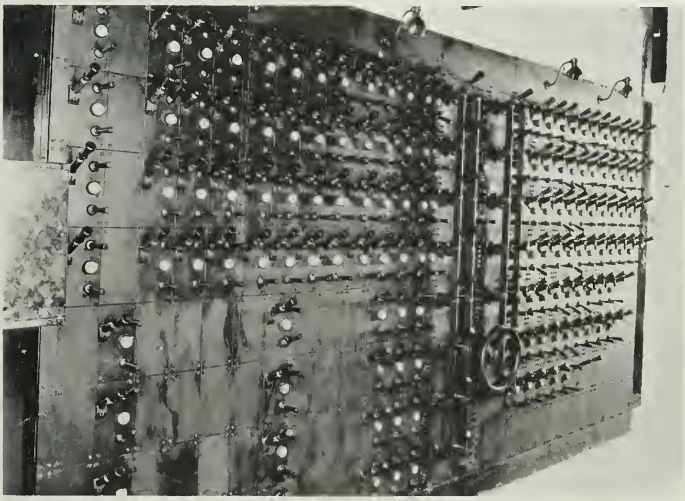
DOILY AND EXPOSED TRUSS WORK, GRAUMAN'S METROPOLITAN THEATER
William Lee Woollett, Architect



DETAIL OF DOILY



CEILING OF LOBBY, GRAUMAN'S METROPOLITAN THEATER
William Lee Woollett, Architect

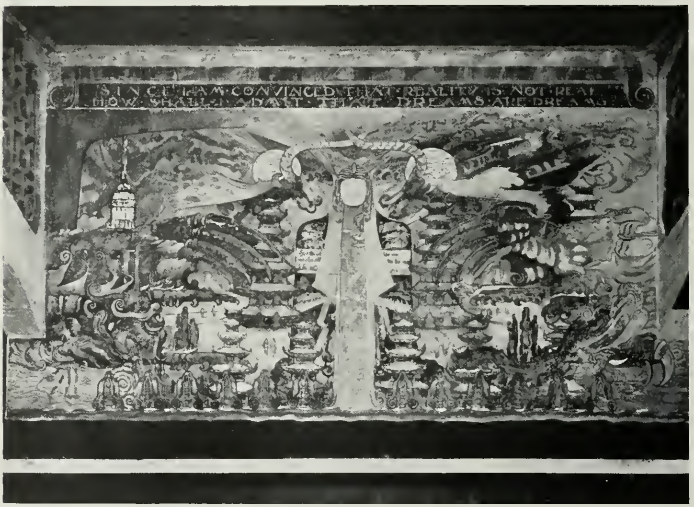


PILOT SWITCHBOARD, GRAUMAN'S METROPOLITAN THEATER
Largest and most compact board ever installed in a theater. Designed specially for this $184,000.00 lighting scheme
Wm. Lee Woollett, Architect

Grauman Theater a Work of Art

By E. BINGHAM

WILLIAM LEE WOOLLETT, architect of Grauman's Metropolitan Theater, has accomplished a princely achievement, significant in three ways. He has produced an innovation of striking originality in an art-form peculiarly bound by traditions and conventional limitation; he has done a thing creatively American in the visual arts and he has interpreted the time-spirit of his own age in terms comprehensible to the majority of the minds of that age. Furthermore, he has demonstrated that a work of art must be direct and personal expression of one man, absolutely controlled by him in all detail.



MURAL, "PRINCESS OF THE GOLDEN KINGDOM"
William Lee Woollett, Architect
Drawn by Paul K. Mays and Steffan Horbaczak, painters

In the last century a wall has grown up between the industrial and the fine arts. The Metropolitan Theater breaks through this barrier and unites them for service in the same spirit with which they were used in the days of the great builders. Then painting and sculpture were the right and left hand of the "mother art," architecture, and worked only to aid and emphasize her demands and intentions. All the great buildings have votive elements in their character. There is something votive in the Metropolitan Theater. It is built for and dedicated to, the American public, millions strong, who find in the color and rhythm of gorgeous spectacles and syncopated music a satisfaction that is a national characteristic.

However we may deny it, this peculiar quality of rhythmic alteration, the basis of our "dance tunes," is the only thing foreigners will

admit to be truly American, and therefore creative, that we, as a nation, have contributed to the art of the world. It is obvious that syncopation was "imported" from Africa via the slave trade, but it is equally obvious that we made it "American" before we sent it out again. In the same way, Mr. Woollett has used his great technical skill, his instinct and imagination upon the symbols, the arts and psychological reactions of primitive peoples, and invented from them an atmosphere which expresses the American people, both the masses and the classes. In this way he has expressed the spirit of his age in its own terms. Let no one think that to reproduce time, spirit has nothing to do with art, for it is only in recent days that art has become merely an aesthetic emotion.

OWL GRILLE, CEILING GRAUMAN'S METROPOLITAN THEATER
William Lee Woollett, Architect

The earlier centuries mixed and mingled the art of the day with the life of the day. It is this vitality which makes and preserves "masterpieces." It is something stronger than movements, schools or traditions.

All designs for the sculpture and batiks were created by Mr. Woollett, although executed by men who are themselves artists and technical experts. The lighting, its installation and color effects are also his. It is the sifting of all these things through the artistic temperament of one artist that gives the house its peculiar perfection. Appreciation is surely also due the men whose courage, discrimination and farsightedness made this achievement possible. Few American business men are willing to risk millions to produce a work of art.—Saturday Night.

Lantern executed by B. B. Bell & Co.

MURAL AND LANTERN IN MAIN LOBBY, GRAUMAN'S METROPOLITAN THEATER
WILLIAM LEE WOOLLETT, ARCHITECT

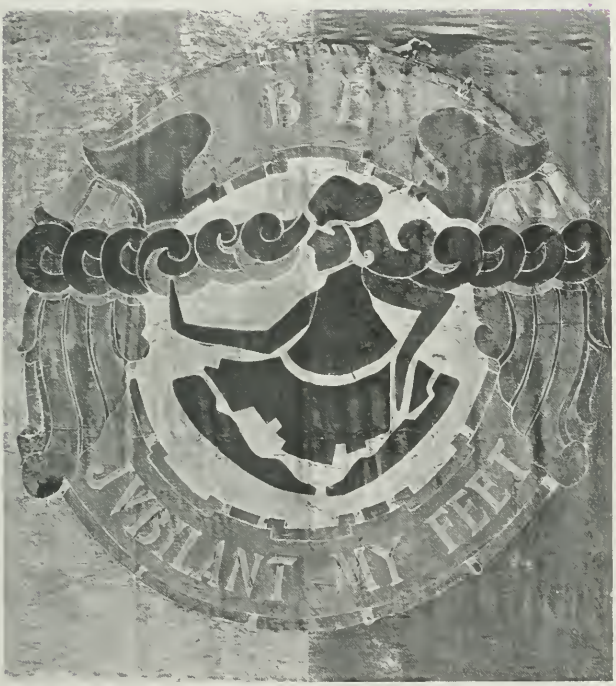
These carved chairs show motifs used elsewhere in the building, executed by Leon Spinak & Co.

CHAIR AND SIDE BRACKET OF CARVED WOOD, GRAUMAN'S METROPOLITAN THEATER
WILLIAM LEE WOOLLETT, ARCHITECT

A new conception of Pan—so old that his first crop of horns is dropping off—second crop just sprouting. Modeled by Mr. Woollett.

MODEL GRAUMAN'S METROPOLITAN THEATER
WILLIAM LEE WOOLLETT ARCHITECT

SAN FRANCISCO
PUBLIC LIBRARY



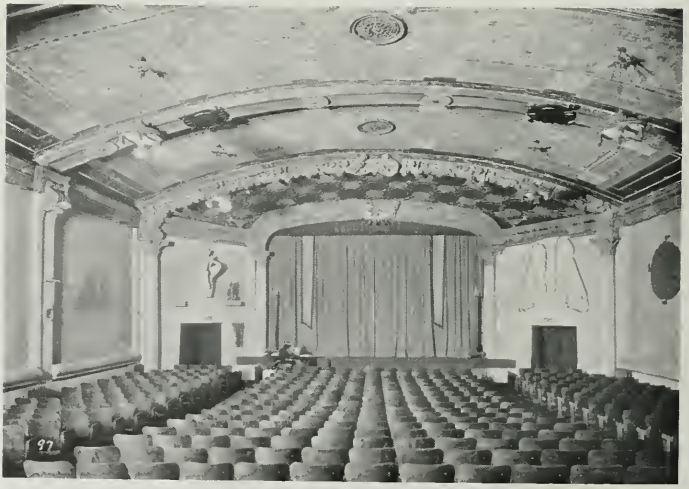
Made on Panne velvet from designs
by Mr. Wcollett

ILLUMINATED TAPESTRY, "BE JUBILANT MY FEET" GRAUMAN'S METROPOLITAN THEATER

ORIGINAL SKETCH FOR ORNAMENTAL GROUPS ON TOP OF COLUMN IN AUDITORIUM
GRAUMAN'S METROPOLITAN THEATER WM. LEE WOOLLETT, ARCHITECT

MODEL OF SNAIL DEER, "ASPIRATION" FROM A DRAWING BY MR. WOOLLETT

MODEL OF "MR. GOD" PANEL, GRAUMAN'S METROPOLITAN THEATER



INTERIOR RIALTO THEATER, LOS ANGELES
William Lee Woollett, Architect

TWO VIEWS SHOWING SIDE WALLS OF PROSCENIUM ARCH, RIALTO THEATER
LOS ANGELES WILLIAM LEE WOOLLETT, ARCHITECT

WATER COLOR SKETCH, COUNTRY HOME
BY WM. LEE WOOLLETT ARCHITECT

SKETCH, LOS ANGELES CIVIC CENTER SCHEME
Suggested by William Lee Woollett, Architect

MONUMENT AND VAULT, MONTEREY, CAL.
Woollett & Woollett, Architects

EAGLE ROCK CITY HALL, EAGLE ROCK, CAL.
WILLIAM LEE WOOLLETT ARCHITECT

EAGLE ROCK CITY HALL, EAGLE ROCK, CAL.
WILLIAM LEE WOOLLETT ARCHITECT

STAIRWAY, RESIDENCE MR. L. B. MENEFEE, HOLLYWOOD
WILLIAM LEE WOOLLETT ARCHITECT

The Intercommunicating Telephone

By A. F. COMBS

THE term "intercommunicating" as applied to the telephone can be interpreted in a large sense, as any telephone that is arranged so that it can be connected to another telephone or series of telephones affording intercommunication.

However, in present-day nomenclature the term "intercommunicating telephone system" usually defines a system of telephones arrangd for intercommunication solely within the confines of an establishment, or series of establishments controlled by one concern. Even in the early stages of the exploitation of the telephone by public telephone companies it was soon apparent that large business organizations, institutions, etc., would require a multiplicity of telephones within their organizations, to keep their establishments in efficient touch with the public who had telephones connected to the telephone company's system.

To connect each of these telephones individually to the central exchange would have entailed a considerable expense, as well as a very complicated arrangement to intelligently list every departmnt and individual in the telephone directory.

These difficulties brought about the development of the private branch exchange or "P-B-X," as it is more commonly known.

The "P-B-X" consists of a system of telephones connected to a small manually operated switchboard located within an establishment, which is in turn connected to the central exchange by means of one or more trunk lines. Generally this equipment is owned and installed by the telephone company, who lease the equipment to their client on a monthly or annual rental basis. The operator necessary to complete the connections at the P-B-X- is in nearly all cases in the employ of the client renting the system.

As stated before, the P-B-X- was designed to connect a system of telephones within an institution with the various other telephones on the telephone company's network. It was at once obvious that the various deparments could be also interconnected and with the rapidly increasing use of the telephone the daily number of calls completed between departments often exceed those to and from the outside.

This condition is so general in many of the larger institutions today that business men recognize that interior telephone traffic (inside calls) and exterior telephone traffic (calls to and from the outside) are two entirely different functions.

To superimpose a large amount of interior telephone calls on a switchboard that was primarily installed to complete calls to and from the outside congests the system, overloads the operator, makes the service rendered unduly rigid and inflexible, and generally inefficient.

To remedy this condition a secondary system is usually installed to relieve the P-B-X operator of the purely mechanical function of completing an interior call. These systems are usually automatic in their operation, i. e., no operator being required to complete a connection. There are many different types of interior telephone systems on the market. In small establishments the push button type is largely used. This type of telephone, in addition to the regular transmitter and receiver, has a collection of push buttons mounted either in its base or often in a small box in close proximity to it. The telephones are interconnected by means of a cable of twice as many wires as there are stations, and the talking and ringing current is furnished by dry cells. These

systems are generally limited to twenty stations. In the larger establishments the "dial" type telephone is generally employed. The "dial" type or automatic telephone, as it is more commonly known, is very similar to the ordinary telephone except that it has a small dial at its base having ten round perforations, each large enough to insert the finger. These perforations are numbered from 1 to 0, and by revolving this dial any desired number combination can be established. These telephones are connected to a mechanical switchboard by means of a single pair of wires. The revolution of the dial creates a series of electrical impulses which when transmitted to the switchboard causes the mechanical apparatus to respond and thereby complete the connection to another telephone. The talking current is furnished by a storage battery and the ringing current usually by either a small vibrator or rotary generator. Some of the advantages of the automatic telephone in comparison to the push button or key type telephones are as follows: Unlimited number of stations can be utilized. Talking current supplied by a storage battery instead of dry cells, assuring uniform transmission at all times, and eliminating renewal of dry cells. Automatic ringing of bells at periodic intervals. The fact that only two wires are required from each telephone makes the change of location of a station a simple task. Secret service created by automatically locking out of any third party attempting to call an engaged station. No push buttons or miniature switchboards required at the telephone station.

Most manufacturers of automatic telephones have developed various electrical services that can be utilized in connection with an automatic telephone system, some of which can be briefly enumerated and described as follows:

CONFERENCE SERVICE: This allows certain groups of officers or employees to hold short conferences by telephone without leaving their offices to assemble in any one place.

CODE CALL SIGNALING OR PAGING SERVICE: By means of a set of suitable signals, such as single stroke bells, electric horns, or electrically controlled air or steam whistles, any individual in the organization can locate immediately any other person whose duties require him to be away from his regular post a part of the time. This service is available from each automatic telephone station. Each person has the use of this call service directly without having to refer the call to an operator or other attendant. This service is very valuable for locating persons when wanted on the telephone for outside calls. Also for the superintendent of the building in locating and directing repair man for emergency repair work, etc. This service is also available to the chief watchman at night to call any watchman on his beat, as well as for sending out emergency calls for assistance in case of fire, robbery or other emergencies.

RECORDING WATCHMAN SERVICE: Certain telephones on the system can be connected to a watchman clock, enabling the watchman to register his visits to the stations by dialling a predetermined number.

GENERAL FIRE AND EMERGENCY ALARM SERVICE: On account of the automatic switchboard and telephones being available 24 hours of the day without the necessity of any operator, it affords a very quick and reliable method of reporting fires or emergencies within an institution. This function can be accomplished in many ways, due to the flexibility of the automatic equipment.

REMOTE CONTROL FEATURES: In some cases fire pumps, flood

lights, power circuits, etc., are being controlled from distant points by simple devices attached to certain predetermined numbers set aside for such purposes. All of the above-mentioned services are controlled by the dial on the telephone, and do not require any additional wires between the telephone station and the mechanical switchboard; and, furthermore, the operation of these services in no way impairs the interior telephone facilities of the system.

As these special services are used as an adjunct to the telephone service, they are usually arranged so that they can be installed either individually or collectively at any subsequent time to the installation of the existing equipment.

Modern business methods have placed the intercommunicating telephone in the position of an important factor in co-ordinating the various daily routines in any large establishment, and therefore architects and engineers recognize it amongst the many essential appliances that they recommend to their clients when planning their projects.

* * * *

Beauty of Gothic Church Architecture

THERE has been much written and even more said recently on the subject of our church architecture, and the Episcopal Church and other denominations have taken up the matter in a vigorous protest against the generally poor quality of church buildings, and organized for action toward their betterment," says an editorial in Architecture, and continues:

"The church of whatever denomination is nearly always a conspicuous landmark, and in every city and town in the country there are many examples of the way a church should be built, looked at from any point of view than that any place may be good enough for a house of worship.

"There is no other great power for the advancement of spiritual welfare of a people that calls for a more intimate uniting of beauty of thought and beauty of fitness in its place of expression.

"The old Gothic builders manifested in their ascending arches and towers and in the lovely detail in both interior and exterior the spiritual aspiration that dominated their ideas of worship, and even those beyond the pale and unresponsive to the purely religious appeal of these wonderful churches are yet moved by the dignity and perfect adaptation of these edifices for their purpose. The best art of mediaeval times went into their building, the most skilled artisans gave of their best, and if not always, maybe, a labor of love combined with a feeling of reverence for the work in hand, there was apparently the pride of creation, of participation in the uplifting of a great monument of beauty.

"We are a far cry from the spirit of the Gothic times, from the method of building that prevailed in the days of the great Gothic cathedrals, but religion is still a power in the world, and houses of worship are still the centers of influence in many communities.

"We are building Gothic churches today, and the style seems especially appropriate for the cathedral church, and in the hands of men steeped in the Gothic traditions the style takes on a noble and inspiring dignity."

* * *

Super - Skyscrapers

Mr. H. W. Corbett, a New York architect, is quoted as predicting that the Eastern metropolis will have a skyscraper 1000 feet high within five years, and declares it must build up to that height because of the natural limitations to the area of Manhattan Island.

Contract Between Architect and Owner

ARCHITECTS will find the following Contract Agreement, adopted by the Illinois Society of Architects, and published in its Monthly Bulletin, very useful if they would save themselves the grief that is almost certain to follow failure to have a definite understanding in black and white with their clients prior to execution of work:

ARTICLES OF AGREEMENT

Between Architect and Owner

THIS AGREEMENT made the
in the year One Thousand Nine Hundred and ,
by and between ,
Architect located for the practice of his profession at
Street, in the City of
County of and State of ,
hereinafter called the Architect, and

doing business at , in the City of ,
County of , and State of ,
hereinafter called the owner.

WITNESSETH: That the Architect and the Owner for the consideration hereinafter named agree as follows:

ARTICLE I. The Architect agrees to render full and complete professional services, including the furnishing of Preliminary Studies, General Drawings, Specifications, Scale and Full-sized Details and General Supervision of the Work, for a proposed

Building, to be erected on

lots owned by the said Owner, described as

ARTICLE II. The Architect and Owner agree that it is the professional service of the Architect which is to be furnished hereunder and that the instruments of service such as drawings and specifications are merely incident thereto and as such remain the property of the Architect; that the items of professional service are comprehended and proportiond to the complete services as hereinafter stated, namely:

(a) Preliminary Studies, amounting to Two-Tenths of the complete professional services, consisting of the necessary conferences, inspections, studies and sketches modified and remodified to determine the client's problem and illustrate a satisfactory general solution of same, both as to plan and elevation. Illustrative sketches for this purpose need not be to accurate scale, but should be approximately correct as to general dimensions and proportion.

(b) General Drawings, amounting to Three-Tenths of the complete professional services, consisting of figured scale plans of the various stories, elevations of all the fronts, such general vertical sections as may be necessary to elucidate the design, and such details, drawn to still larger scale, as, with the assistance of printed notes, and of the accompanying specifications, may make the whole scheme clearly evident to the mind of the competent builder and give him a full and complete comprehension of all the structural conditions as they affect the vital questions of quality and quantity of materials, of character of workmanship, and of cost.

(c) Specifications, amounting to One-Tenth of the complete professional services, consisting of a supplementary statement in words, or at least all those items of information regarding the proposed building which are not set forth in the drawings.

(d) Detail Drawings, amounting to One-Tenth of the complete professional services, consisting of all the necessary supplementary drawings required for the use of builders, to enable them to provide and shape their material that it may be adjusted to its proper place of function in the building with the least delay and the smallest chance for errors and misfits. If not prepared until after the contract

for the building is let they must not impose on the contractor any labor or material which is not called for by the spirit and intent of the "General Drawings and Specifications," except with the consent and approval of both the owner and the contractor.

(e) General Supervision of the Work, amounting to Three-Tenths of the complete professional services, consisting of such inspection by the architect or his deputy, of work in studios and shops or at the building or other work in process of erection, completion or alteration, as he finds necessary to ascertain whether it is being executed in general conformity with his drawings, specifications or directions. In acting in this capacity his authority and status will be as defined in the "General Conditions of the Contract" of the "Illinois Building Contract Documents," which Illinois Building Contract Documents are by reference made an express part of the work which does not conform with the spirit and intent of plans and specifications and order its removal and reconstruction. He has authority to act in emergencies that may arise in the course of construction, to order necessary changes and to define the meaning and intent of the drawings and specifications. He is not required to give continuous personal superintendence, but should the Owner require this service, the Architect will employ a clerk-of-works or inspector to render such assistance under his direction, at the Owner's expense.

Article III. Subject to additions and deductions as provided in Article V of this Agreement, the Owner agrees to pay the Architect for the performance of the contract, a sum equal to.....per cent reckoned on a reasonable estimated total cost of executing the work herein required, to be designed, delineated, specified and supervised in construction by the Architect. Proportionate monthly payments shall be made by the Owner to the Architect in current funds, on or before the 10th day of each month according to the proportionate amount of the various items of hereinbefore defined service which have been completed by the Architect before the 1st day of that month.

NOTE: TOTAL COST, wherever herein used as a base for determining the ultimate fee due the Architect, shall be interpreted as what would be the reasonable cost of all materials and labor necessary to complete the work required to be designed plus contractor's profits and expenses, as such cost would be if all materials were new and all labor fully paid at market prices current when the work was ordered.

The Architect and Owner agree that the question of cost of executing designs for building is controlled by at least three factors, enumerated as follows:—(1) Fluctuating market conditions of labor and material which are beyond the control of either the Owner, the Contractor or the Architect. (2) Quantity and elaboration of material and labor which is entirely within the control of the Owner with the advice of his Architect. (3) Purchasing skill which is largely in the hands of the Architect. It is therefore mutually agreed that it shall be the duty of the Owner to choose between fixing limits on the character of design and quantity of materials or on ultimate cost, since at any time these two factors might be made incompatible by changing market conditions, or unforseeable practical difficulties, and if the Owner elects to fix an absolute limit on ultimate cost, the Architect shall always be at liberty to make such alteration in design, specification and size, or any of them, as shall make it possible to bring the cost within the restrictions imposed by the Owner prescribing ultimate cost.

ARTICLE IV. The Architect and the Owner agree that the Illinois Building Contract Documents shall be used for the General Conditions to contracts between the Owner and Contractors, and the status of the Architect and relation between the Owner, Contractors and the Architect shall be as hereinafter especially enumerated, to-wit:

(a) In the supervision of the work, if by any contract, the Architect is made the interpreter of the drawings and specifications forming a part of any contract between the Owner and any Contractor; as such, it is his duty to define their true intent and meaning without fear or favor. He is to act in this capacity as an expert untrammeled arbitrator licensed so as to act, by the people of the State of Illinois. In so acting, he is not the agent of the Owner, and while acting in that capacity the Owner shall have no right to command his acts or decisions or in any way threaten or intimidate him in the honest discharge of his duty as an arbitrator.

(b) In cases of emergency only, the Architect has authority as a public officer to order extra work or materials, in order to safeguard human life or property.

(c) The Architect in his advisory capacity will not recommend by specifications or otherwise, any materials nor any contracting companies in which he has a financial interest, without fully informing the Owner of his connection or interest in same and obtaining owner's consent so to do. In all such cases he shall be deemed incompetent to act as arbitrator on questions between the Owner and the said Contractor, in any matters which may be disputed between them.

(d) Since by the terms and conditions of this agreement it is made the duty of the Architect to advise the Owner as to design, construction and methods of procedure, the Architect, during the preparation or preliminary studies, general drawings, specifications and details, shall not be considered as being guilty of insubordination or failure to carry out the instructions of the Owner if he submits design for approval or makes recommendations contrary to the Owner's previously expressed instructions, for it is mutually understood between them that it is the duy of the Architect to give the Owner the full benefit of his skill and experience.

ARTICLE V. The Architect and Owner agree that the following items of professional service are in addition to the services required by this Agreement, and if required by the Owner or in the judgment of the Architect are necessary on account of unusual and peculiar complications of the work, are to be paid for as hereinafter stated, to-wit:

(a) The Owner is to pay for the services of any specialists which may be required for additional advice on unusual problems in Heating, Ventilating, Mechanical, Structural, Electrical and Sanitary problems. Nothing in this clause, however, relieves the Architect from the requirement to carefully compute and prepare complete detail plans and specifications for these portions of the work, exercising technical skill and usual care in the preparation of same. The Owner is to pay for special chemical and mechanical tests and service.

(b) The Owner is to pay for all necessary traveling expenses other than between the Architect's office and the building site.

(c) If the Owner requires a special clerk-of-works or inspector, he is to be selected by the Architect and work under his, the Architect's, direction, but his salary is to be paid by the Owner in addition to regular fee for professional services.

(d) If, after a definite scheme has been approved, changes in drawings, specifications or other documents are required by the owner; or if the architect be put to extra labor or expense by the delinquency or insolvency of a contractor, the architect shall be paid for such additional services and expense.

(e) What are commonly known as "Shop-drawings" if necessary to the execution of the work are to be furnished by the contractor or otherwise and are not required to be furnished by the Architect.

ARTICLE VI. (Here fill in any additional conditions which may be required.)

"THE ARCHITECT AND THE OWNER, for themselves, their heirs, successors, executors, administrators and assigns, hereby covenant and agree that they will fully perform each and every condition of the abovementioned agreement.

"In Witness Whereof the parties have hereunto set their hands and seals the day and year first above written."

Architect..... (Seal)
Owner..... (Seal)

* * *

They're Worse Off in England

If the advent of March 15th, first income tax payment date, created an alum taste in your mouth, the sugar coating to the pill is that you'd be a lot worse off in England, comments the St. Paul News, and adds:

Take a single man. If his income is $2500 a year, he pays $60 national income tax in the United States and $253 in England. On $5000 income the American pays $160, Englishman $815. And so on upward. On $20,000 income the English tax is $5500, American only $1760.

Interior Fire Alarm Systems

By H. E. BITTMANN, *Signal Engineer*

THE development of low tension signal systems has kept pace with the development of lighting, heating and power, as applied to building construction. These low-tension signal systems have to do with the comfort, convenience and safety of persons occupying certain types of structures. The rapid development of these systems has imposed upon the architect and engineer the additional task of keeping posted on a factor in building construction which may arise only occasionally in their experience.

This might be the cause of architects and engineers condemning many such systems, without a thorough examination of their merits, proceeding on the theory that these systems are more or less luxurious adjuncts, which can be dispensed with, without improving the efficiency of the service maintained in those particular constructions to which they are adapted.

The purpose of this article is to establish the fact that the modern interior fire alarm system, for certain types of structures, can not be considered any more of a luxury than can lighting, heating, ventilating and plumbing. Should a fire alarm system function but once during the life of a building, and thereby assist in saving lives, it cannot be denied that it will have amply repaid its initial cost and upkeep. Lighting, heating, ventilating and plumbing are more within the class of luxuries than are fire alarm systems. They contribute to the comfort and convenience of the tenants. The fire alarm system is an absolutely essential factor, because it is a first-aid assistant in the rescuing of human life, that most valuable of all possessions.

There is a broad distinction between certain types of fire alarm systems. This distinction is fundamental. I will mention, in this connection, the open circuit system as contrasted to the closed circuit system. The open circuit system has come into wide use on account of its cheapness, and this article will not attempt to discuss in detail the crudeness of this type of system. It is a well-founded fact that open circuit systems are unreliable in every way. They are not approved by the National Board of Fire Underwriters, nor have they been used in municipal work. The closed circuit system is the exact reverse. The scope of this article will endeavor to bring out more clearly the contrast by indirect comparisons.

The question is frequently asked, What is a closed circuit system and why should it be used? The function of a fire alarm system is so indispensable, and it is so infrequently used, that it is necessary to know at once if any portion of the system fails. Should there be no warning of such failure, the system may remain in an inoperative condition for a long time, and not function when most needed. To guard against just such a condition, the closed circuit system was devised. This system is so constructed that a small quantity of electric energy is constantly flowing through all of the apparatus and wires at all times. Should a contact become corroded, a wire break, or any part of the apparatus fail, this current is interrupted, which causes certain apparatus to function, which in turn causes a bell, gong, or other sounding device, to ring continuously until the defect is remedied.

Other low-tension systems, such as telephones, bells and clocks, do not require this supervision, because they are in constant use, and any failure is promptly noted. Furthermore, such systems have to do mostly

with the comfort and convenience of the persons operating them. The failure is only an annoyance and does not constitute a serious menace to life. On the other hand, a fire alarm system is used infrequently, perhaps not at all, unless there is a fire, and it must function.

Fire alarm systems apply to two general classes of structures. One class are those structures where the saving of life is the main consideration. To this class belong such buildings, or groups of buildings, as schools, colleges, hospitals, asylums, and hotels. It is a noteworthy fact that within this class there are two types of buildings where attendance is involuntary, namely, schools and asylums. The attendance at hospitals or hotels is not necessarily involuntary, but people have to go to these buildings, whether they are protected or not.

The second class comprises industrial plants, representing in some cases great fire hazard and in others only a slight risk. In this class also belong public buildings, office buildings, warehouses, large stores and loft buildings. In this class of construction the main consideration is the loss of property, and will be dealt with later in this article.

Returning again to the subject of those classes of structures first mentioned, and particularly schools and asylums, where attendance is involuntary. We send our children to schools, our ill to hospitals, and our defectives to asylums. We do so under the assumption that they will receive a greater measure of care and safety than can be afforded in our own homes. These institutions represent the communal interests of society—co-operation and specialization. Yet the monstrous fact remains that every week ten schools are burned, every day one hospital burns, and half as many asylums and similar institutions.

It is not the intention of this article to convey the impression that the modern interior fire alarm system is the sole remedy for overcoming fires; there are other and vital elements which have to do with the saving of life and the loss of property. The structure of the building itself, its exits, its stairways, its water supply, its hose and extinguishers, are indispensable, if properly used; but, before these fire-retarding devices can be of any use, we must have a means of instantaneous alarm. A high-grade fire alarm system is certainly the prime factor in saving of life, because of the speed with which the alarm is given. What is more important yet, there can be no sound and reliable basis for the establishment of a properly trained fire-fighting force without the aid of an efficient fire alarm system. Take the various classes of structures under consideration; the schools must have trained teachers and scholars; hospitals, trained nurses and executives, who should know their proper station and duties in the event of fire; employees can be trained to use their efforts to extinguish, or hold in check, destructive fires until the fire department comes. These auxiliary life-saving and fire-fighting forces can easily be recruited from the employees, each person knowing his duty and performing it without confusion.

The architect or the engineer must not place too great a dependancy upon the fact that his structure is fireproof. There is no fireproof building in existence, to my knowledge, which does not contain some inflammable contents. The interiors of schools, asylums, hospitals and hotels contain woodwork, draperies, carpets, bed clothing, etc. A panic from smoke-filled corridors is often more disastrous than the loss of life in a burning wooden structure.

The closed circuit fire alarm system has reached a very high state of efficiency and reliability. Certain systems are so designed as to call the fire department at the same time that the local alarm is given. As a rule, each particular building, or group of buildings, require an especially designed system. Hotels, colleges, and hospitals have certain requirements which have developed a particular type of system. In some instances we have to deal with large institutions built in units, and the system has been so arranged that the sounding of the fire alarm signal gongs takes place only in the unit where the fire occurs. In buildings consisting of a single structure, a pre-signal system has been designed, whereby the alarm is not sounded on the gongs until the employees in charge ascertain the seriousness of the fire. The common sense of this is evident, because in hospitals at all times, and in college dormitories and hotels for at least eight hours out of the day, the occupants are not prepared to leave the building at once.

Regarding the second class of structures, industrial plants, mentioned in this article, it is a notable fact that industrial plants, taken as a whole, pay more attention to fire protection than do schools, hospitals, and similar institutions. A first-class fire alarm system means a reduction in the insurance rate. And, what is more important, a small fire loss, with slight interruption of business. Speed is the essence of fire fighting. Any fire chief will tell you that the first three minutes in the life of a fire means a serious conflagration or an unimportant loss.

In conclusion, the entire matter may be summed up in a few brief points, regardless of type, character, or class of construction:

Fire-resisting building construction.

Adequate water supply.

Fire extinguishing apparatus.

An efficient fire alarm system.

Properly trained employees.

The United States is facing an ever-mounting fire loss. Last year this reached the huge total of $500,000,000.00. Fire extinguishing apparatus and a fire alarm system cost such a relatively small amount, compared to the value of the building, that there can be no intelligent argument against their use. These are days of greater efficiency, and the interior fire alarm system cannot be considered otherwise than as a necessity.

* * *

Who Wants a Castle?

A fine 50-room castle on the Rhine opposite Coblenz, together with its furnishings and fifteen acres of vineyards, is advertized for sale for $1000. F. Mochau of Chicago, an army official, who departed with the American troops, bought for his wife's father for $65 a farewell present of an apartment house at Mavence consisting of six three-room apartments and a plot of land. There were two pre-war mortgages on the house for 43,000 marks, the old equivalent of $10,000. Mochau paid off the mortgages for $2, the present equivalent of the amounts. An American army officer a year ago ordered a hunting rifle, then valued at $100. The rifle was delivered to him and he paid the mark equivalent for it, or thirty cents in American money.—Monthly Bulletin, Illinois Society of Architects.

Elements of Architecture

Need of a Better Understanding of the Five Orders

BY elements of architecture is meant the forms which are the backbone of architectural design. These forms consist chiefly of the five orders—Tuscan, Doric, Ionic, Corinthian and Composite. It is absolutely necessary for the architect to know these forms and to have them at his finger ends. They are very easy to remember if we bear in mind the following table:

Name of Order.	Diameters in Height.
Tuscan	7
Doric	8
Ionic	9
Corinthian	10
Composite	10

A glance will show that the two plain orders—the Tuscan and the Doric—are the heaviest in proportion to the height. The more ornate orders, the Corinthian and the Composite, are the slimmest. The Tuscan and Doric are the two orders best adapted to exterior use, because of their simplicity and strength. The Ionic and the Corinthian being rather slim, delicate and ornate, are better fitted for interior work. The Composite order is seldom used, as it is but a poor combination of the Corinthian and the Ionic, and in no sense a pure or beautiful order.

When the orders are superimposed they should be used in the sequence of their relative diameters, the heaviest one being always the under order. It would be the hight of architectural solecism to use the Tuscan over the Ionic or the Doric over the Corinthian. The reason for this can be readily seen. A light, airy order like the Ionic would look very sorry trying to hold up a heavy order like the Tuscan.

Not only should the architect be posted on the orders, but also every other person who in any way is engaged in the work of painting or drawing. This applies to the painters of all kinds, illustrators, cartoonists, commercial artists, advertising specialists, etc.

Take the case of the painter of stage scenery. Much of the stage scenery that we see is very pretty with the exception of the architectural representations, which are almost invariably atrocious. Figures, scenery, foliage, etc., may be fine and the architecture very bad. Suffice to say that the bad spoils the good part.

Many beautiful paintings have failed to pass the gauntlet of the critics because of the architectural mistakes in them. The greatest painters that the world has produced represented their architecture correctly. Many painters never grow wise to the real reason why their paintings are not well received, but if they will look at the architecture in their compositions they will soon find out the reason for their rejection.

Our illustrators and our advertisements are the greatest offenders in regard to the bad representation of the forms of architecture. The colors may be superb and the message very plain, but to the practical eye the mistakes are galling and nullify the whole intention of the work.

Magazine covers are exquisite in everything except the architecture. Here we find beautiful splashes of color and voluptuous figures of women, reclining against atrocious looking columns. Dear little kewpies chase

each other along the top of devilish looking cornices or play at tag through clumsy pergolas. Pictures of contented and kind-faced cows are shown in frames designed to represent one of the orders of architecture. We will say to everyone who pushes a pencil for a living—Get some knowledge of the elements of architecture and then your picture will succeed.—Washington State Architect.

* * *

Experiments in Electric House Heating

EXPERIMENTS that may revolutionize the heating industry were undertaken in Boston the past winter, according to Bernard Peterson, writing for The Boston Transcript, who says the results may demonstrate that homes can be heated by electricity for about one-fifth of what it costs to heat them with coal.

This is a promise to revolutionize house-heating. In its broad possibilities it points to a reduction of coal prices to a competitive level, and it is even predicted that the relatively near future will see the closing of most of the coal mines because coal will not be needed in large quantities.

Professor Reginald A. Fessenden of 45 Waban Hill road, Chestnut Hill, has experimented for several years with electrical heating, and has arrived at the conclusion that the cost of distribution can be reduced to such an extent that the fuel bill will be of relatively small importance in the near future. His introduction of the turbo-electric driven battleship came in the face of much opposition, and it has measured up to the claims. So convinced is he that electricity, which is now selling for some 9 to 10 cents per kilowatt hour for lighting purposes, can be produced and distributed at a radical reduction from such figures by an inexpensive change in the distribution system, that he proposes a definite plan for Boston.

How electricity can be produced much more cheaply than now, by increasing the volume of production from the present equipment; how the expensive distribution system now required, which is responsible for about seven and one-half cents of the ten cents which the consumers pay, can be replaced by another distribution system that is inexpensive; how the Edison Company would be affected by it, not adversely; and how the coal operators may have to rush to cover to get what they can before the demand for coal vanishes, is set forth by Professor Fessenden in detail.

* * *

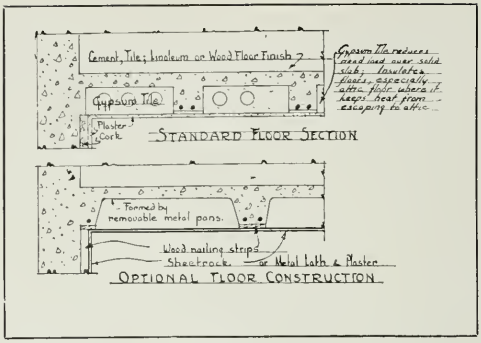
Ornamental Iron

THERE is no material that looks any better or that breaks up the monotony of brick and terra cotta construction any more effectively than good ornamental iron work. There are various places where it may be used and many beautiful designs that may apply to it.

The Italians recognized the value of well-designed iron work in the Rennaissance period. We find a great deal of this iron work in the old Italian palaces, such as in the Pitti Palace and many others. The lamps and torches are very charming in their simplicity.

Not enough attention is given to the design of fire escapes. These appendages on our buildings are very conspicuous, especially if on the front of buildings. We naturally place them on the rear of our buildings, where they will not be seen very much. Even the rear fire escape should have more attention and be made more attractive.

One possible explanation for the discontinuance of ornamental iron has been the high price of metal work in general. It would seem that this use has fallen off very materially in the last few years. We regret that this is so, and would like to see a revival of it.—Washington State Architect.


Cement, Tile, linoleum or Wood Floor Finish
Gypsum Tile
Plaster
Cork
Gypsum Tile reduces sound and over solid slab, insulates floors, especially attic floor, where it keeps heat from escaping to attic
STANDARD FLOOR SECTION
Formed by removable metal pans.
Wood nailing strips
Sheetrock or Metal lath & Plaster
OPTIONAL FLOOR CONSTRUCTION

SUGGESTION FOR CONCRETE FLOOR CONSTRUCTION

Fireproof Floors for the Home of the Future

CONCRETE, Detroit, Mich., recently asked some of its readers who have studied permanent house construction closely, each from a slightly different angle, to report comparative costs for fireproof floors and ordinary wood joist floors in small dwellings—houses to sell for about $6000, with 800 sq. ft. of plan area. This figure cannot ordinarily be obtained for a house of that size, yet one builder, by the use of many short cuts and economies and rigid attention to the matter of minimum cost, is building a smaller house and selling it, lot and all, at a proportionately lower price than $6000.

In Syracuse, Hueber Bros. have a different idea. Their aim is to build the best possible house for the citizen of better than average means with more outlay on finish, fittings and special equipment—to sell in competition with the average American house of burnable construction. Mr. Paul Hueber writes:

"I made the accompanying sketch to bring out clearly the simplicity of the floor in Fig. 3, which I believe will, sooner or later, become the popular finish for a concrete slab.

"A fireproof floor for a small concrete block house, I believe to be impracticable, as the cost of setting up machinery for mixing, elevating and pouring concrete would be charged against floors only, and this would bring the unit cost rather high. Also the blocks would have to be laid by a mason at a high wage rate, while with a monolithic home the floor is a simple problem, and no skilled labor is required for the wall.

"We prefer not to give our unit costs as yet, as we are trying out changes which may take another year to prove, and our labor cost with our forms would be of no value to someone else using ordinary forms or other patent forms.

"We have not used cement floor finish, but it might interest you to know that in Cleveland, Ohio, cement finished floors are being placed in apartment houses throughout and they are preferred to wood.

We find that the sleepers over the concrete slab, which carry the finish floor, about equal the cost of the sub-floor, there being less lumber

but more labor. The reinforced slab replaces joists, bridging and lath, and if forms are true, less plastering is required.

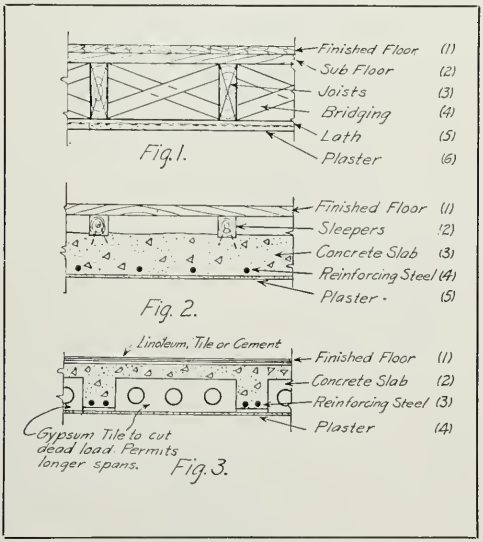
"Linoleum is extensively advertised for home floor finish after general adoption in other types of buildings where there is hard usage.

"We use beam and tile (gypsum) floor construction, as our forms use spans to 17 ft. and a 5-in. slab of this construction permits a 40-lb. live load in a 17-ft. span."

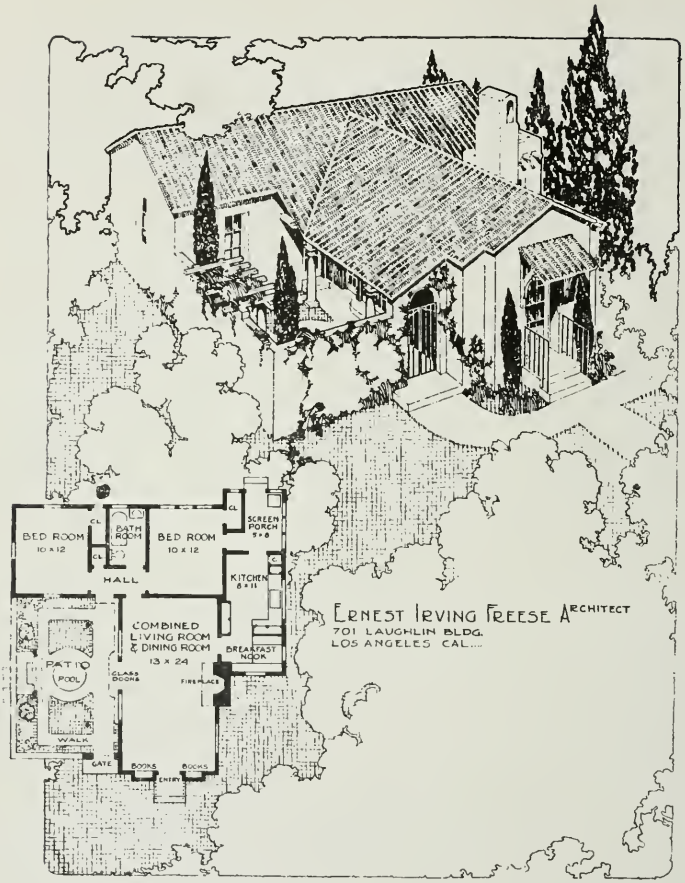
Speaking of the cost of building a fireproof dwelling, Mr. Leslie H. Allen of the Portland Cement Association says:

"The cost of a house of fire-resisting concrete construction is so little in excess of the cost of the inflammable materials so much in use today that it is surprising that concrete construction is not more largely used for home building.

"The biggest hindrance to the adoption of permanent materials of construction is not high cost (because the difference in cost is very small), but the fact that the builder of today who is chiefly engaged in the building of small homes is the carpenter contractor. He is accustomed to execute all the carpenter work himself and to sublet other trades, such as painting and foundations, plastering, plumbing and the like. He naturally desires to do as much of each job as possible with his own forces and to sublet as little as possible; and, moreover, being chiefly interested in carpenter work he is usually not well informed on the details or the cost of concrete construction, and will often tell the client that it is far too expensive, or too difficult or unsuitable."



HUBER COMPARATIVE FLOOR SECTIONS



SUGGESTION FOR BUNGALOW WITH PATIO AND POOL
ERNEST IRVING FREESE ARCHITECT

Fireproof Requirements for Buildings of Various Types

THE following table, compiled from the National Board of Fire Underwriters Building Code, has been published in Safeguarding America:

1. The following structures to be fireproof:

Armories	Hospitals
Asylums	Libraries
Bath Houses (with sleeping accommodations)	Museums
	Nurseries
City Halls	Railway Passenger Stations
Colleges	Schools with pupils above second story
Court Houses	
Detention Buildings	Theaters
Police Stations	

2. When over three stories high the following to be fireproof. When three stories or under, must have fireproof floor over cellar or basement.

Amusement Halls	Lodge Rooms
Churches	Public Halls
Exhibition Buildings	

3. When over three stories high. When three stories must have fireproof floor over cellar or basement.

Dormitories	Lodging Houses
Hotels	

4. When having more than 15 sleeping rooms or when over three stories high. When three stories must have fireproof floor over cellar or basement.

Bachelor Apartments	Studios
Club Houses	

5. When over four stories. When four stories must have fireproof floor over cellar or basement.

Dwellings	Apartment Houses
Tenements	

6. Mill or fireproof when over four stories or 55 feet. Mill construction not permitted over 65 feet without sprinklers and 75 feet with sprinklers.

Factories	Stores
Lofts	Warehouses
Office Buildings	Workshops
Printing Houses	Garages
Stables	

7. The following should be permitted only in isolated locations:

(a) Fireproof,	Smoke Houses
Oil Houses	Dry Cleaning Establishments
Oil Refineries	Laboratories
Rendering Plants	Buildings for Combustibles
Soap Factories	

(b) Fireproof or mill if in fire limits or if over 55 feet high. Mill construction not permitted over 65 feet without sprinklers, and 75 feet with sprinklers.

Car Barns	Ice Houses	Grain Elevators
Foundries	Refrigerator Plants	Slaughter Houses
Power Plants	Malt Houses	Wharf Buildings
Freight Stations		

THE
Architect and Engineer
Incorporated
Founded 1905 by E. M. C. WHITNEY
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Published Monthly in the Interest of the Architects, Structural Engineers, Contractors and the Allied Trades of the Pacific Coast by The Architect and Engineer, Inc.

PUBLICATION OFFICE:
627-629 Foxcroft Building, San Francisco
Telephone Douglas 1828

The publishers disclaim any responsibility for statements made in the advertisements of this magazine.

Terms of Subscription
(Including postage) to all parts of the United States, $2.50 per annum; to Canada 75c additional; to all Foreign points $1 additional

Vol. LXXIII MAY, 1923 No. 2

COMPREHENSIVE PLAN NEEDED FOR PENINSULA DEVELOPMENT

The fame of cities through the ages has been inseparably coupled with beauty. This beauty, where it exists, in virtually all cases has been achieved only by the correction of errors—a slow, laborious, heart-breaking and expensive process, but in the end a profitable one.

Growth of a city seldom, if ever, has been guided by a preconceived plan. The City Beautiful idea, as a prospect, too frequently is regarded as a dream impossible of attainment. Expediency, rather than ultimate ideal, usually controls municipal growth, but why should not every city prepare a plan for ideal future development, and work to it?

Such a plan need not cost much. If at fault as conceived it could be corrected. In any case it would be better than no plan at all. A good plan would fight its own battles; a bad plan would fall of its own weight.

The San Francisco-San Mateo peninsula, despite present activities and immediate projects, still is, to all intents and purposes, virgin territory. It is destined inevitably to become a part of one of the world's greatest cities.

Fifty years ago Chicago was an unlovely, straggling, unattractive community of 250,000 people. Today, largely because of constructive city planning, it is one of America's most attractive cities, with a population of more than 3,000,000 people spread for fifty miles along the shore of Lake Michigan, a distance equal to that from the Golden Gate to San Jose on our peninsula.

Imagine New York without Central Park, or San Francisco without Golden Gate Park! Picture the peninsula's future congestion, its probable needs and requirements. Contemplate the impending fate of its present natural beauty! Let the growth of the city, its social and industrial welfare, be enhanced by adding to, rather than detracting from, such natural beauty. Conserve it, nurture it, expand it—the city will expand regardless!

To provide a comprehensive plan would require but a moderate outlay of money. It would not carry with it, for its execution, any immediate need for large expenditures. Such a plan merely would furnish a scheme whereby expenditures year by year for ordinary improvements, could be so directed that eventually, link by link, realization of a beautiful as well as a practical program for community building could be more easily and more rapidly accomplished.

It is proposed that a period of two years or more be devoted to these necessary studies. It is estimated that the cost thereof, including diagrams, surveys, perspective and other drawings, publication of the report in attractive form, together with incidental expenses, will not exceed $60,000.

To direct preparation of this plan and make a report thereon, it is recommended that the expert services of Mr. Edward H. Bennett of Chicago and Dr. B. M. Rastall, industrial engineer, be secured, and the supervisors of San Francisco and San Mateo Counties will undoubtedly be petitioned to provide the necessary funds.

WILLIS POLK.

ARCHITECTURE OF SMALL CITIES

There is no reason why the architecture of small communities should not be just as carefully worked out as that of the large cities. The presence of "shacks" in any place should not be tolerated.

The people of small cities are just as keenly interested in things vital to all the world as any one else.

We agree with the Washington State Architect that too many small town structures are erected without the services of an architect. The architecture, or rather the absence of architecture, in some of these towns within a few hours drive of San Francisco, is little short of atrocious. It certainly is refreshing to drive through a small place and see a well-designed building. A good front for a building is the best advertisement that any merchant or bank can have. It suggests prosperity and good business within.

An up-to-date business man does not go to work clothed in a dirty, untidy suit and neither should he do business in a dirty, untidy and unsanitary building. Property owners in small cities owe it to themselves and their town to employ an architect when they are ready to invest their savings in a new building.

THE ARCHITECT AND ELEVATOR SAFETY

The Elevator Safety Orders of the Industrial Accident Commission, effective October 1st, 1916, and revised as of April 1st, 1918, are undergoing another revision which has been practically completed, as it is contemplated to hold the final committee meetings during the current month. After presentation of the printed draft at public hearings, the tentative orders will be re-submitted to the committees before final adoption by the Commission.

As in the past, persons representing a variety of interests concerned, served on the Revision Committees. The San Francisco Chapter of the American Institute of Architects is represented on the present Revision Committees by Messrs. Clarence R. Ward and Sylvain Schnaittacher, the Southern California Chapter by Messrs. O. W. Morgan, Jr., and Clarence Noerenberg.

The architect is privileged to help materially in the effort to provide elevator safety. When planning a new building to be served by elevators, he should design the hoistway and hoistway enclosure, penthouse and pit to comply with the Elevator Safety Orders. The elevator contractor can then proceed with the installation of machinery, guides and elevator car in accordance with these orders, and, when the job is completed, few if any changes should be necessary before acceptance and issuance of operating permit.

Of particular interest to the architect are the Safety Orders appearing below: "No. 316—Capacity, No. 317—Speed, No. 322—Car Construction, No. 323—Car Enclosures, No. 327—Supporting Beams, No. 328—Hatchway Enclosures." This last-named order is of special importance. Architects are now designing the hoistways for passenger elevators to be flush on the landing side, so that there are no projections in front of the elevator opening and all shear hazard is eliminated. Order No. 331—Pit, is of interest. The elevator pit should extend the entire area of the hatchway; footings for columns or walls should not extend into the hatchway. Order No. 333—Doors and Gates, deserves attention. After a

building has been erected, it is sometimes found that no provision has been made and no space left for the installation of freight elevator doors or gates. Copies of the Elevator Safety Orders are always available, without charge, by applying to the Commission.

C. H. FRY.

A TRIBUTE TO AMERICAN ARCHITECTURE

(From the San Francisco Journal)

As a nation, we think it a matter of course that experts from Europe should visit our mechanical and industrial centers to study our methods and gather new ideas. We also think it natural that our citizens should go to Europe for instruction in the fine arts and in what are called "cultural" subjects. The general view of the matter is that Europe leads us in the arts as conspicuously as we lead her in the industries.

There are indications, however, that we are rapidly acquiring a new kind of eminence. The English Society of Architects has recently established a scholarship requiring the holder to visit the United States for six months, and afterward to submit to the society a report on certain aspects of the development of modern architecture. This is one of the most impressive tributes thus far to our growing prestige in the world of art.

Probably our greatest contribution to the art of the world will lie in a combination of utility with beauty. According to Ruskin, this is the sovereign test of all success in architecture. Decorative features bearing no relation to the utilitarian purpose for which a building is designed tend to give an effect of ornamentation which Ruskin condemned as mere ostentation and vanity. Whether he was right or not, it is certain that the careful adaptation of detail in the best American architecture to the idea of service has induced a simplicity and clean directness that are in themselves outstanding qualities of beauty. There is a restraint, rationality, balance and clearness of design in the most characteristic examples of American architecture that give it a spirituality of its own. The same traits are reflected in our ideals of character—absence of pretense and complexity, a serene acceptance of the laws of nature as the rules of the game; courage, clear-sighted optimism and a desire in action for a perfect economy of means, in which every gesture will move directly towards its goal. The same qualities show in the work of our writers, inventors, executives, athletes and leaders in the other fields in which we are nationally interested. They show in the freedom from affectation and prejudice that distinguishes the best type of American gentleman. If it is an essential virtue that the character of a nation and its architecture should be of one piece, American buildings deserve a high rating.

How to Polish a Concrete Surface

A reader of Concrete and Constructional Engineering (England) asks how a concrete surface may be polished, to which the editor's reply is:

"In order to polish concrete like marble or granite, the surface will have to be rubbed down as in terrazzo work. A semi-polish can, however, be obtained as follows, supposing the surface to be reasonably smooth: Dissolve ¾ lb. potassium carbonate in one quart of boiling water, and, whilst boiling, add and stir until dissolved, ¼ lb. of beeswax in slices; or melt the wax and add to the hot water and potassium carbonate mixture. If too thick, add enough hot water to make it creamy when cold. Apply with a brush or rag, let it dry or partially dry, and polish with a stiff brush."

$10,000,000 Institution Society's Plan

The American Institute of Architects has been asked by the Brotherhood of American Yeomen to select among its number the architect best fitted to work out plans for a $10,000,000 home for motherless and fatherless children the fraternal order will establish.

Final selection of a site for the home will be made within the next few weeks, according to Mr. Farmer, secretary of the children's house committee.

With the Architects

Building Reports and Personal Mention of Interest to the Profession

Designing Passenger Stations

Architects MacDonald and Couchot of San Francisco have recently been commissioned by the Southern Pacific Company to design passenger depots for the company at Los Gatos, Santa Clara County, and Glendale, Los Angeles County. The same architects are designing a five-story Class C reinforced concrete apartment house for Mr. Sidney L. Peyser to be built on Gough street, near Buchanan, San Francisco, at an estimated cost of $90,000. MacDonald and Couchot are also the architects of the proposed new $1,000,000 hotel which Mr. E. Tropp and associates plan to build in Sacramento.

Petaluma Hotel

Plans have been completed in the office of Mr. Frederick Whitton, 369 Pine street, San Francisco, for a four-story reinforced concrete hotel to cost $250,000 and to be erected at Washington and Kentucky streets, Petaluma, for the Petaluma Hotel Company. Plans have also been made in Mr. Whitton's office for extensive alterations to the White House department store building, estimated to cost $60,000.

Mills College Work

Improvements planned at Mills College, Alameda County, this year include a one-story wing to the proposed new art building, for which there is available $65,000, the construction of a concrete swimming pool, 75 x 30, and two small concrete bridges on the college campus. The architect for Mills College is Mr. W. H. Ratcliff, Jr., of Berkeley.

Office and Loft Building

Architect A. A. Cantin, Foxcroft building, San Francisco, has completed plans for a three-story Class A office and loft building for the Mergenthaler Linotype Company on lower Sacramento street, running through to Commercial street, San Francisco. The company will spend $100,000 on the improvements.

To Complete University Stadium

A contract has been let to the Clinton Construction Company of San Francisco at $511,000 to complete the Memorial Stadium in Strawberry Canyon, Berkeley, for the University of California. It is hoped to have the stadium ready for the November football game.

Has Much New Work

Architect S. Heiman, 57 Post street, San Francisco, is preparing plans for a three-story reinforced concrete furniture warehouse covering five and one-half acres at 59th street and Slauson avenue, Los Angeles, for the Continental Furniture Manufacturing Company of San Francisco. The improvements will cost close to one million dollars. Mr. Heiman has also prepared plans for a two-story reinforced concrete warehouse to be occupied by the Palm Olive Soap Company on the west side of Second street, north of South Park, San Francisco; a two-story brick store and loft building on the northeast corner of Telegraph avenue and Williams street, Oakland, for Mr. Emile E. Kahn, to cost $45,000; and a Class C store and apartment house on the north side of Post street, east of Jones, San Francisco, for Mr. George Cohn, to cost $90,000.

Architect Ehrenpfort Busy

Some of the new work in the office of Architect Arthur T. Ehrenpfort, Russ building, San Francisco, and 671 Alcatraz avenue, Oakland, includes a $50,000 Masonic Temple for the East Bay Masonic Building Association, to be erected on the north side of Alcatraz avenue, east of Adeline street, South Berkeley. The structure will be two stories with stores on the ground floor and lodge rooms on the second floor. Construction will be of brick. Other work in Mr. Ehrenpfort's office includes a two-story apartment house on Hillegass, near Alcatraz avenue, Berkeley; a Class C warehouse; a brick store and apartment building for himself at Alcatraz and Shattuck avenues, Berkeley; and an apartment house on Guerrero street, San Francisco.

Civic Center Buildings

To complete the San Francisco Civic Center, an advisory committee of architects has been appointed, consisting of Messrs. Bernard Maybeck, chairman; E. Coxhead, Jno. Reid, Jr., Fred'k. H. Meyer and John Galen Howard. This committee will collaborate with the architects of the proposed new opera house to be designed by Messrs. Willis Polk and G. A. Lansburgh and the museum to be designed by Messrs. Bakewell & Brown. These two structures will complete the Civic Center group.

University Architectural Society Banquet

The several architectural organizations in Los Angeles and all institutions teaching architecture were represented at a banquet of the Architectural Society of the Southern Branch, University of California, at the Los Angeles University Club, April 19th. A lecture on "Italian Gardens" by Mr. Myron Hunt was a feature of the program.

Mr. Sumner Hunt, president of Southern California Chapter, American Institute of Architects, spoke at length upon the interest of the Institute in architectural education.

Mr. Jess Stanton spoke on similar lines in the interest of the Allied Architects Association of Los Angeles. Mr. Lloyd Rally, vice-president of the Architectural Club of Los Angeles, told of the value of the Atelier of the architectural club to architectural students.

Mr. Fitch Haskell, who served on a jury with Messrs. Stanton and Carpenter, who judged the Beaux Arts problems of the Southern Branch Atelier, reviewed the findings of the jury and named the students who were given awards. The problems submitted by Messrs. Rodney McClelland and Alden Johnson were placed first and second respectively in the competition.

Mr. Julian Garnsey, mural painter, and Mr. C. H. Cheney, city planner, spoke of the importance of architects becoming interested in mural painting and city planning respectively.

Mr. Claude Faithful, head of the architectural department at the Polytechnic High School, spoke about the place of high schools in architectural education.

Mr. Clifford A. Truesdell, Jr., president of the Architectural Club, impressed upon all the need for closer co-operation between the professional men and the institutions teaching architecture, and suggested that this banquet, which was the first at which representatives of the profession and those teaching architecture had ever been gotten together, be made an annual affair.

The architectural department and faculty of the University of Southern California were the guests of the Southern Branch Society at the banquet.

Designing Oakland Hospital

Architect R. A. Herold of Sacramento is preparing plans for the new Providence Hospital to be erected at Webster and Summer streets, Oakland. It will cost $500,000, and will have accommodations for 150 patients. A hospital of similar design and proportions has been planned for the Sisters of Mercy at Sacramento and construction of this building is already under way.

Promotion and Retirement

Mr. William A. Newman, architect of San Francisco, has again been elected vice-president of the Society of Constructors of Federal Buildings. Mr. Newman is now in charge of the San Francisco headquarters of the Supervising Architect's office in Washington, succeeding Mr. Joseph W. Roberts, who was recently retired and who is now traveling abroad.

At the same meeting at which Mr. Newman was honored, a fine tribute was paid to Mr. Roberts, whose headquarters were at San Francisco since 1897, and who retired from the Government service February 20th last, after continuous duty of 39 years.

The following editorial appeared in the Journal of the Society:

"During his term of office at San Francisco Mr. Roberts has had many arduous and trying duties to perform, especially the work required of him immediately following the great earthquake and fire and during the reconstruction of the city. He was able and competent to meet any task imposed upon him, and always completed his work with credit to himself and the office he represented. Mr. Roberts retires from the service voluntarily, as the department desired that he continue for a year or so longer. He leaves with the benefits of the retirement act, and will receive the highest annuity granted under that law."

Long Beach Architects' Club

The Architects' Club of Long Beach has been formed by thirty-five architects of that city. Mr. W. Horace Austin is the president, the other officers being: Vice-president, Mr. H. H. Lochridge; second vice-president, Mr. F. H. Gentry; secretary, Mr. Natt Piper; treasurer, Mr. R. D. Van Alstyne; sergeant-at-arms, Mr. Vern Heddon. The club will co-operate with the city officials in securing better architecture for public buildings and in framing a new building code for Long Beach.

California Redwood Exhibit

Architect Ernest Irving Freese has prepared plans for an exhibit to be installed in the Metropolitan Exhibit by the California Redwood Association. The design is an English cottage in which will be displayed different types of exterior and interior finish, and also the various effects to be obtained by staining, sandblasting, etc.

Passing of Los Angeles Architect

Architect George Edward Voelkel died suddenly at his home, 7025 Moneta avenue, Los Angeles, April 19th, aged 75 years. He came to Los Angeles in 1894 and had been continuously engaged in architectural work.

Personal

Architect E. C. McManus announces the opening of an office for the practice of his profession at 118 Locust avenue, Long Beach. Catalogues and trade literature may be forwarded to Mr. McManus at the above address.

* * *

Mr. W. Wellington Smith, formerly architect of the Board of Education of Butte, Montana, has opened an office at 245 E. 12th street, Long Beach.

* * *

Architects Witmer and Watson have moved their offices from 504 Wright & Callender building to Suite 415, Bank of Italy building, Los Angeles.

* * *

Architects Morgan, Walls and Morgan have increased their office facilities by establishing a branch drafting room in 1301 Van Nuys building, Los Angeles.

* * *

Architect Carleton M. Winslow has moved his office to 922-24 Van Nuys building, Los Angeles.

* * *

Architects Hugh R. Davies and Edward J. Baume have taken space in the new Farmers & Merchants Bank building at 4th street and Pine avenue, Long Beach, and will shortly remove their offices and drafting rooms to Suite 9 and 10, 12th floor of that building. Mr. Baume is a Columbia University and Beaux Arts graduate, and formerly of the offices of William Wells Bosworth and George B. Post in New York City. He practiced for a while in Spokane, Washington, where he designed the new $500,000 Elks Club building and the $400,000 Deaconness Hospital.

* * *

Architect Edward C. Nowers Brett has opened an office at 502 Slavin building, Colorado street and Fair Oaks avenue, Pasadena. Mr. Brett has engaged in architecture in Pasadena for some time, until recently being architect in charge of the designing and drafting department of the Littleton Company of Pasadena.

* * *

Architect Robert H. Orr is recovering from an automobile accident. While returning from Ventura his machine skidded on a wet pavement and collided with a heavy truck. Mr. Orr fortunately escaped serious injury.

* * *

Messrs. Arthur T. Raitt and R. H. Crawford, formerly with Architect Carleton M. Winslow and Mr. R. H. Douglas, formerly designer for Architects Walker and Eisen, have formed the Triangle Company, and have opened architectural offices at 682 S. Alvarado street, Los Angeles.

* * *

Architect Louis Christian Mullgardt has returned from a year's tour of the world. Mr. Mullgardt sailed from San Francisco last May, visiting the islands of the Pacific, China, Malay Archipelago, and India, and was in Egypt at the opening of King "Tut's" tomb.

* * *

Mr. Chester H. Loveland, consulting engineer, announces the removal of his offices from the Merchants' Exchange building to larger quarters on the ninth floor of the Balboa building, San Francisco.

* * *

Architect William Binder of San Jose, accompanied by Mrs. Binder, has been touring the Eastern states, sailing from San Francisco on the steamer Columbia, via the Panama Canal.

* * *

Messrs. Corwin & Merrill, architects, announce the removal of their offices May 1st from the Douglas building to 3981 West Sixth street, Los Angeles.

Architect to Build

Plans are being prepared by Architect Smith O'Brien, San Francisco, for a two-story and mezzanine reinforced concrete building to be erected on lot 25 feet by 80 feet, corner of Bryant street and Center place, San Francisco. The owners are Messrs. Smith O'Brien and C. B. Hobson. The approximate cost is $14,000.

Sacramento Department Store

Plans are being prepared by Architects Powers and Ahnden, 460 Montgomery street, San Francisco, for a three-story and basement Class A department store building to be erected on the southwest corner of 12th and K streets, Sacramento, and to be occupied by the Weinstock-Lubin Company. The exterior of the building will be terra cotta and marble, and the cost is estimated at $850,000.

Moves to New Offices

Mr. Clifford W. L. Day, sales representative in San Francisco and Northern California for Nitrose, a paint that is said to possess superior merits as a preventive of corrosion, announces the removal of his office from the Monadnock building to 543 Clay street, San Francisco.

Garden Planting

Emerson Knight, landscape architect and engineer, 704 Market street, San Francisco, has completed plans and planting for the gardens of six houses on 28th avenue, north of Lake street, in Sea Cliff, San Francisco, for Allen & Company.

Two Clubhouses

Architect Frederick S. Harrison, Sacramento, is preparing plans for two club buildings, one for the Shakespeare Club of Placerville and the other for the McKinley Park Athletic Club of Sacramento. The buildings will cost in the neighborhood of $15,000 each.

How the Dollar Is Spent

The cost of an average residence that is well designed and properly built may be divided among the various items about as shown in the following table:

36.1 cents for masonry
29.1 cents for carpentry
8.7 cents for heating
6.5 cents for painting
6.0 cents for electrical work
6.0 cents for plumbing
3.5 cents for sheet metal work
2.9 cents for roofing
1.2 cents for hardware.
100.0 cents equals 1 Dollar.

These figures were given to the Copper and Brass Research Association by competent quantity surveyors and building estimators of long experience.

California Sketches on Exhibition

An interesting exhibition of water color and pen and ink sketches by Charles Edward Hodges, architect, is now being held in the New York Public Library, Hudson Park branch. The sketches were made in California, France, England, and Old New York City, and will be on exhibition until June 1st, Mr. Hodges was formerly resident architect of Stanford University, California, and practised in San Francisco.

San Francisco Church

Architects Beezer Bros. of Seattle and Tacoma have opened an office at 1915 Steiner street, San Francisco, having been commissioned to prepare plans for the new St. Dominic's church. It is understood that only a portion of the edifice will be built this year. Eventually the structure will entail an outlay of $1,000,000 or more.

$4,000,000 Los Angeles Building

A twelve-story Class A store and office building is being designed by Architect Tilden S. Norton, Los Angeles, for Mr. A. C. Blumenthal and associates. The structure will occupy the block from 609-619 South Broadway, extending through to Hill street, Los Angeles.

Sacramento Warehouse

Architects Dean and Dean, Sacramento, have completed plans and have awarded a contract for a one-story reinforced concrete warehouse at Third and Q streets, Sacramento, for the Lindley Grocery Company. The building will cost $90,000.

Chamber of Commerce Building

A competition is being held by the architectural students of the University of California for the best design of a Chamber of Commerce building, to be erected on the southwest corner of Oxford and Addison streets, Berkeley.

To Plan Better Homes

Plans for a "Better Homes Competition" for the best-designed home of moderate cost for prizes to be offered by Mr. Louis Breuner, a Sacramento merchant, are announced by the educational committee of the Sacramento Architects and Engineers' Club. The competition is open to all architects of Sacramento, and the prizes will be $100, $75, and $25. The prize-winning drawings are to become the property of the Architects and Engineers' Club, and will then be for the free use of any wishing to build.

The plan outlined calls for a one-family dwelling and garage the cost not to exceed $7500, with full gardening and landscape work outlined in addition, arrangements and details to be determined by the competitor.

The committee in charge is composed of Messrs. Jens C. Peterson, chairman; R. E. Backus, Leonard Starks, Frederick Evans and C. S. Pope.

Community Play House

A unique project is the Pasadena Community theater to be built on El Molino street, at Colorado, in Pasadena. The site is 110 x 195 ft. and save for a court around which the buildings will be built, the entire lot will be covered. The theater will be on the rear of the lot and will be two stories in height. It will have a seating capacity of 800, including a balcony, and there will be a stage for a complete theatrical production. Working plans for the project are being prepared by Architect Elmer Grey of Los Angeles, and as soon as the cost can be definitely ascertained the Pasadena Community Playhouse Association, which is sponsor for the project, will raise the necessary funds.

Designing Hollywood Subdivision

Mr. Franz Herding, Sacramento, whose work as a city planner and land settlement developer is well known to readers of The Architect and Engineer, has been commissioned to prepare plans for an elaborate hillside home subdivision at Hollywood Knoll, Southern California. About 325 acres of rolling hillside will be converted into a high-class residence section. The promoters are the Taft Land & Development Company.

Honor for Mr. Fricke

Mr. J. W. Fricke, president of the C. F. Weber Company, San Francisco, has been elected president of the National School Supply Association, succeeding Mr. C. S. Meck of Harrisburg, Pa. Mr. Fricke's election was a feature of the annual convention, which was held in the Pennsylvania city the early part of February.

Estuary Tube Ventilation

That there is no question as to the feasibility of ventilating the proposed Alameda-Oakland estuary tube crossing, is the opinion contained in a telegram received by County Surveyor George Posey from Mr. Clifford M. Holland, acknowledged to be the foremost authority on tube construction, and chief engineer of the New York State Bridge and Tunnel Commission.

Mr. Holland became interested in the estuary tube crossing when he visited the San Francisco bay district last fall.

The Hudson River tunnel, now being constructed under the supervision of Mr. Holland, is four times as long as the proposed estuary tube. Ventilating mechanism has been installed with shafts every 3375 feet, which will change the air in the tube forty times an hour or once every $1\frac{1}{2}$ minutes. The tube, to cost $28,000,000 upon completion, will be used by 1900 vehicles every hour, and is being constructed solely for gasoline and horse-drawn conveyances.

Endorse Civic Center Plan

Southern California Chapter of the American Institute of Architects unanimously adopted a resolution in support of the recommendations of the City Planning Commission that a civic center be created in the district bounded by First street, Main street, Sunset Boulevard, and Hill street. The Chapter has also adopted a resolution urging the support of the proposition to vote bonds for the erection of a new city hall building.

President Sumner Hunt and Geo. D. Hall of Cook & Hall, landscape architects, explained by use of maps and a perspective drawing, a tentative suggestion for a civic center in the district north of First street. It is generally conceded that this is the only district in which the city can obtain a real civic center, as the county officials are definitely committed to this location.

Architect Building Country Home

Mr. A. H. Knoll, architect in the Hearst building, San Francisco, is building a two-story Spanish house on his ranch at Los Altos, Santa Clara County. Mr. Knoll has also designed an eight-room house to be built in Palo Alto for Mrs. Clarkson and a $20,000 frame apartment house to be erected on the north side of Grove street, east of Clayton, San Francisco.

Stockton City Hall

Plans have been completed by Architects Pearce, Loseckann and Sala of Stockton for a Class A city hall, and bids for the construction of the building will be received up to May 29th. The estimated cost is $600,000.

Architects Should Plan Ventilation Shafts of Maximum Height

To the Editor of The Architect and Engineer

The report of the Public Health Committee of the New York Academy of Medicine on the effect of automobile exhaust gas on health gives cause for thinking and action along various dissimilar lines.

The maximom bad effect as regards respiration attains during periods of low wind velocity. High buildings- the higher the more effective—scoop down pure air from the skies because of the greater velocity of the higher winds, cleanse the streets of atmospheric filth, and are the best available means for securing pure air in city streets. Restrictions limiting the height of buildings must be reconsidered.

When walking, if one changes from one side of Fifth Avenue to the other, the difference in the purity of the air is easily noted; pure air is breathed on the side toward which the wind is blowing, and the exhaust gases drift across the street to the opposite sidewalk.

Ventilation systems usually draw air from near the street level, and, therefore, diffuse automobile exhaust gas into the interior atmosphere. Architects should plan shafts or stacks of maximum possible height for new buildings so that air of the best quality could be secured for ventilation.

The percentage of carbon monoxide in automobile exhaust gas is undoubtedly greatly increased when automobiles are operated in mass formation, as on Fifth Avenue under present traffic regulations. Instead of relatively pure air, the carburetors draw highly concentrated exhaust gases given off by preceding automobiles. Carbon monoxide is made industrially in gas-producers by an analogous method, carbon dioxide being first made by perfect combustion and then reduced to carbon monoxide by means that prevent perfect combustion.

The probable greatly increased production of carbon monoxide under conditions imposed in vehicular tunnels indicates that their ventilation, if based on old standards and traditional methods, is likely to be ineffective.

What is now used for automobiles is not gasoline of pre-automobile quality, which was, and still is, used for making lighting gas for country homes, and burns so perfectly that the products of combustion can be liberated as with illuminating gas. The odors and smoke that fill the streets indicate that gasoline now has admixtures that are unburnable under frequently existing conditions. The making of volatile oils from non-volatile by the process known as "cracking" may be the cause of these odors. A legal standard is necessary.

Fresh air to breathe is the foremost sanitary need for city dwellers. Very truly yours,

THEO R. N. GERDES.

105 Bank street, New York City.

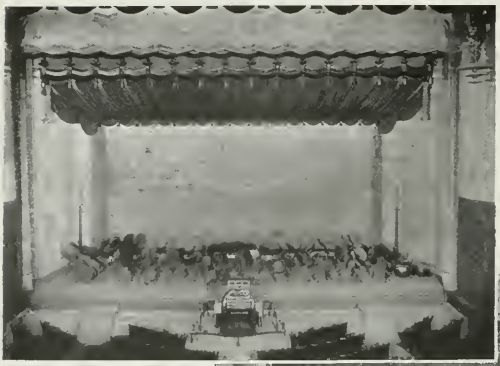
Berkeley Store Building

Architects Hutchinson and Mills of Oakland have prepared plans for a one-story reinforced concrete store building with foundations sufficiently strong to carry two additional floors, to be erected on Shattuck avenue, between Bancroft and Durant avenues, Berkeley, for Messrs. George Schneider and Leslie R. Wilson. The latter, a contractor, will have charge of construction.

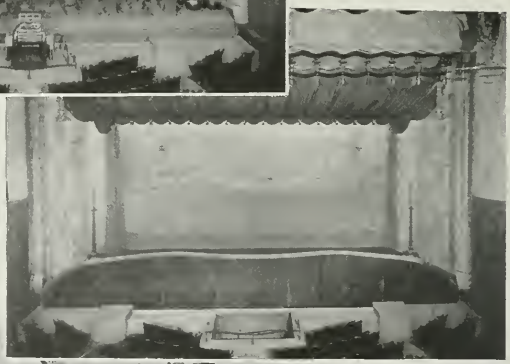
Architect Donovan Returns

Architect John J. Donovan of Oakland has returned from an extensive Eastern trip, which included a visit to many of the prominent architectural firms in Chicago, New York, Boston and other Eastern cities.

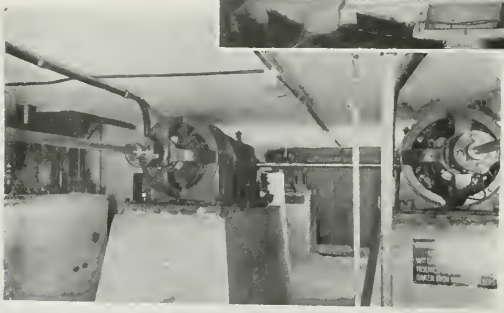
Views of Stage Elevator Installation in Grauman's Metropolitan Theater



Organ Console Platform and Orchestra Platform in uppermost position, Grauman's Metropolitan Theater, Los Angeles. Asbestos curtain, when in its lowest position, rests on 6-inch concrete wall separating the two platform pits.



Organ Console and Orchestra Platforms in their lowermost positions, showing the curved form of the rear edge of the orchestra pit.



Interior Machinery Room, showing Solenoid break and screw unit of organ console at left and two 25 horsepower motors and screw unit for raising orchestra platform in background.

Notable Stage Elevator Installation in the Grauman Metropolitan Theater

FORTY years ago the first power freight elevator in Southern California was built by the Baker Iron Works of Los Angeles for H. Newmark & Co., wholesale grocers of that city.

A few weeks ago this same firm built what is said to be the largest and most powerful electrically-operated platform in Southern California. The first job undertaken by this pioneer company resulted in what today would be considered a crude and miniature elevator, while the second instance resulted in the immense orchestral elevator and pipe organ console lift in the new Grauman Metropolitan Theater.

This immense platform, 55 feet in length and 15 feet in width, is capable of lifting an orchestra of 100 musicians with their music racks and instruments. The organ console lift, working independently of the orchestra lift, is five feet ten inches wide and nine feet seven inches long.

The main lift may be operated either by the director from his stand or by the stage manager from one of the wings of the stage. The console platform is operated by the organist. Both platforms are noiseless in operation, and may be stopped at different stages of elevation through the pressure of different buttons. There is no creeping in either of the platforms, as each stops flush with each floor objective and remains there indefinitely without shifting. This phase of the construction was necessary, as the orchestra platform is often used as an additional unit to the main stage when dancing acts are used and where absolute floor smoothness to eliminate tripping hazards is called for.

Two 25-h. p. General Electric motors operating four screws—the screw method rather than cables or hydraulic plungers were used—operate the large platform, while a 10-h. p. motor furnishes motivation for the console platform. Only one screw is used for this lift.

The screw method was decided upon because of the insurance against slipping as well as the fact that all chances of a drop in case of accident are eliminated. The four screws used in the large platform are geared together in such a manner that possibilities of slipping, tilting or sticking at the ends are likewise eliminated.

The machinery is housed in a soundproof room beneath the pit of the orchestra platform, while additional noiseproof assurances are obtained through the employment of numerous rubber-tired guard wheels fixed to the sides of the platforms.

Although the theater is famous for its wonderful interior decoration and lighting effects, the effect produced by these two moving platforms is a matter of considerable comment from the audience. They have been in operation for several weeks and are reported to have fulfilled all of the expectations of the owners.

Construction Engineer Tells of Some Unusual Experiences

Mr. Dan Gutleben of Gutleben Bros., San Francisco contractors, recently visited his old California friends. Mr. Gutleben is now with the Pennsylvania Sugar Company, Philadelphia, in charge of their construction department. Under his supervision the Pennsylvania Sugar Company is digging drainage ditches, building levees, and reclaiming about 36 square miles of swamp land about 15 miles west of Miami, Florida. This work is extensive in character and is costing in the neighborhood of $6,000,000. They are also building a large cane sugar mill on the property reclaimed. It is the intention to produce the raw sugar at this plant, and transport by water to Philadelphia to their large and modern refinery recently constructed.

During this last season the rains in Florida were more than normal, and as the dikes were not completed a large part of the property to be reclaimed was flooded. A great many of the wild animals of the swamp sought refuge on the levees, as these levees were almost the only spots above the water. It was no uncommon sight to see deer, wolves, snakes, and even bears in very close proximity. In the early days of the flood rabbits were plentiful, but quickly disappeared when the snakes were forced to the high ground.

The houses occupied by the workmen were built on piles several feet higher than the highest water. One of the workmen had a pet dog in his house. A large alligator smelled the dog and swam directly under the house, located the position of the canine, and would thump the bottom of the floor with his snout. The terrified dog would leap to the far corner and the alligator would then proceed to the point nearest the dog. The latter was badly frightened until his owner was able to secure a gun with which he killed the alligator. It measured 15 feet 6 inches in length.

Mr. Gutleben expects to remain with the Pennsylvania Sugar Co. until February, 1924, after which he will resume his consulting engineering and construction business in San Francisco, specializing in sugar production.

With the Engineers

Co-operation Between Engineer and Architect*

By ROBERT D. KOHN

Vice-President American Institute of Architects

THERE has always been a misunderstanding between architects and engineers as to their particular functions. In recent times this has become more noticeable because there have been distinct instances where the engineers felt that the architects have intruded on their field, and there were frequent occasions when the architect felt that the engineer had invaded the field of architecture. What we need more than anything else as between the two professions is a clear understanding of the respective functions of the two professions. The field is large enough to need no rivalry. The subject itself is one that would lead us far afield and take much time to cover. Let it suffice for the moment to point out that what is needed is co-operation and not competition. The two professions supplement each other.

What Architecture Is.—Architecture is not the art of applying decoration or ornament, or "piling up" ornament on a structural form. It is the art of seeing into every elemental form and into the complete structures certain fundamental conditions that make for better-looking structures. The beauty that we all desire in everything that surrounds us has to be of the essence of the structure or form, not merely applied to it. By proper co-operation between the engineer and architects these results can be attained. And incidentally, the study of good form and beauty is not the sole function of the architect. But until now he has alone studied adequately the amenities of life in many directions; in other words, those gracious features which make a structure something other than merely a shelter against the intemperance of the climate or weather.

Perhaps the whole thing can be summed up by such a case as the Pittsburgh bridge which was the subject of endless debate a year or two ago among the Pittsburgh engineering societies because the design of a great highway bridge was given to a firm of architects. The protest was in part justified. The design should have been given jointly into the hands of engineer and architect. The element of good appearance should at the very outset be kept in mind in the design of a bridge as well as any other public structure, street development or parkway. It is unnecessary to point out to an audience of this kind how successful such co-operations of engineer and architect have been.

Co-operation in War Time Building.—A splendid illustration of what co-operation can do is furnished by some of the war-time building in the various services of the government. The particular service in which the speaker was engaged (the housing division of the Shipping Board) was particularly fortunate to have had the co-operation of all the professional men joined in it. The engineering division in charge of Morris Knowles of Pittsburgh, the construction division under W. G. Luce of New York, and the design division under F. L. Ackerman of New York, very soon realized what could be accomplished by a joint study of every problem at the very beginning of every procedure. In other words, during that strenuous period of war-time activity, the architect, the engineer, the construction man, the division in charge of materials and transportation, the men in charge of layouts for water supply, gas and electricity and street layouts, all sat down together and discussed everything from available material to the nature of the soil and possible schemes of sewage disposal. The full import of every housing project was thus at least touched upon at the very outset, and each division responsible for the solution of any part of the problem was conscious of the elements of the problem faced by the others. By the middle of 1918 the whole procedure had been immensely improved by reason of this co-operation. Shortly after the armistice, at a conference held in Philadelphia attended by probably a hundred of the leading engineers, architects and construction men associated with the Shipping Board housing division, there was only one sentiment expressed as to the most marked influence of joint work in that government service. It was that each one realized the inestimable value of co-operation in the whole construction field.

The Congress of the Building Industry

There has been one exceedingly interesting outcome of this war-time work. In a measure it was responsible for the

* Abstract of an address presented before Municipal Engineers' Society of New York City.

creation of what has been called the Congress of the Building Industry. This congress movement started about two years ago, and now has local branches in New York, San Francisco, Portland, Boston and Philadelphia, in which the membership consists of seven or eight groups of men connected with or interested in the building industry. Generally, the groups are engineers, architects, contractors, sub-contractors, labor, real estate and finance.

The congress was formed to bring together all of those elements for joint discussion of their problems. It was agreed at the start that all contentious subjects like wage rates and conditions of labor, on which there is always a disagreement between employer and employee, should be eliminated from the discussions of the congress. It was recognized that these topics would always be a source of disagreement, but it was felt that there are innumerable problems with which the building industry is faced which can only be solved by joint study of all those interested. That the principle on which the building congress is based is correct is evidenced by the results already attained in the establishing of an apprenticeship school for carpenters, sheet-metal workers, painters and others, and the studies of seasonal unemployment and other subjects of importance to the building industry. What has been most effective is the fact that the best results here and elsewhere are always attained when all of the elements concerned in any particular problem work them out together, rather than one group imposing its will on the rest.

Results of Co-operation.—In conclusion, it seems important to point out that what can be accomplished by the engineer and architect co-operating in their own field can in a still greater measure be advanced by reason of the professional men getting together to advance the causes of value to the public. The professional man is impotent in public affairs —as a rule he is in the minority. It is rare in any public service of the government to find a man of technical ability at the head of any department. Some layman is generally put in charge, and he goes through the motions of directing the work, whereas the men who really know how to do it are generally in the position where they have to take orders and fight ignorance and in some cases worse. With the exception of Mr. Herbert Hoover, who, perhaps as the result of his war-time service, is now in the government service, it is hard to find another technical man who has ever held a position of importance in the Federal government service.

Almost every subject in the way of public improvement interests all of the professions. The subject of housing, which has been endlessly discussed in the last few years, is not, for instance, a subject for the architect alone nor for the engineer alone. It interests those two professions, but it also interests the physician in the matter of public health; it interests the social worker from the point of view of the family; in certain fields, the law, items of land ownership, the proposition of maintenance and community ownership and utilities, etc.

When all the professions are brought together in some joint body to act on public questions that arise—when the weakness of a single profession acting on any public matter is overcome by the weight that can be put behind any movement by joint action, then the professionally-trained men of the country will receive from the government the consideration that they should have. Then and then alone will we begin to get into the government an adequate measure of that competence and technique which private corporations are wise enough to buy, but which our municipal, state and National governments have never seemed to be willing to pay for or to get by any other means. It is to that larger vision of the possibility of co-operation that the speaker appeals for your individual support and for the support of organizations like the municipal engineers.

State Highway Engineer's Estimates

In his estimate of maintenance and reconstruction requirements on the California state highways, Mr. R. M. Morton, state highway engineer, places the amount for reconstruction at $4,460,350 for the fiscal year ending June 30th, 1924, and at $5,418,770 for the fiscal year ending June 30th, 1925, or $9,879,120 for the biennial period, a little more than half the total estimated for reconstruction and maintenance for the two years. The total estimated for reconstruction and maintenance for the fiscal year 1923-24 is placed at $8,401,268 and for the fiscal year 1924-25 at $9,871,435, a grand total of $18,272,703.

Following is the estimate for reconstruction with the amounts and mileage to be rebuilt for each division:

Fiscal Year, July 1st, 1923, to July 1st, 1924

Division Headquarters	Reconstruction Mileage	Reconstruction Amount
I (Willits)	4.0	$ 137,000
II (Dunsmuir)	5.0	60,000
III (Sacramento)	67.0	1,701,350
IV (San Francisco)	24.2	741,000
V (San Luis Obispo	20.0	500,000
VI (Fresno)	20.0	500,000
VII (Los Angeles)	25.1	821,000
Totals	166.2	$4,460,350

Fiscal Year July 1st, 1924, to July 1st, 1925		
I (Willits)	6.0	$ 150,000
II (Dunsmuir)	10.0	120,000
III (Sacramento)	66.0	1,788,400
IV (San Francisco)	37.0	865,000
V (San Luis Obispo	20.0	500,000
VI (Fresno)	20.0	500,000
VII (Los Angeles)	39.5	1,495,370
Totals	198.5	$5,418,770

In a statement given out accompanying the tabulated estimate, the state highway engineer says:

"Much of the existing state highway system is in crying need of replacement. Reconstruction and widening must be accomplished as soon as possible in order to preserve the investment already made in the paved highways. Considerable amounts are needed for the general maintenance of the highway system."

The Road to Tamalpais' Top

By G. H. GREEN, in Pacific Engineer

To anyone interested in highway engineering one of the most keenly interesting trips that can be taken by auto within a day's run from San Francisco is that to the top of Mount Tamalpais. The Ridgecrest road, extending for six miles from Ridgecrest to Rock Springs and then for three miles farther to the tavern on Mount Tamalpais, is a triumph of the community spirit now making itself manifest in many Pacific Coast counties. The San Anselmo Chamber of Commerce led the way in planning and financing the project, but was speedily joined by other Marin county civic associations, and a company was formed for the building of this beautiful roadway. It is operated for the present as a toll road, but the plans are such that it will ultimately revert to county ownership.

The boulevard is approached by the hill road from Fairfax to Bolinas, or by way of Stimson Beach. The new route starts from Ridgecrest Lodge, where the toll gate is located. The road is surfaced with crushed rock and is twenty-four feet in width, with all dangerous turns minimized. Automobile service stations are established at both ends, and a telephone line has been strung with booths at one-mile intervals.

The nine miles of the new highway afford examples of the overcoming of nearly every type of obstacle met in the construction of mountain roads, so a trip over its entire length, with frequent stops for observation, constitutes a valuable course of study for any road-builder or engineer.

Mr. John C. Ogelsby, deputy county surveyor of Marin county and city engineer for many local municipalities, had charge of the planning and construction. Advantage was taken of the natural topography to such an extent that the road in making an ascent of approximately 2700 feet in nine miles of travel manages to avoid the necessity for any grades steeper than 10 per cent. As a consequence almost any motor-car can make the climb without resorting to low gear. Drainage is well provided for throughout, and practically every portion of the road receives direct sunshine during some part of the day.

The O'Shaughnessy Dam

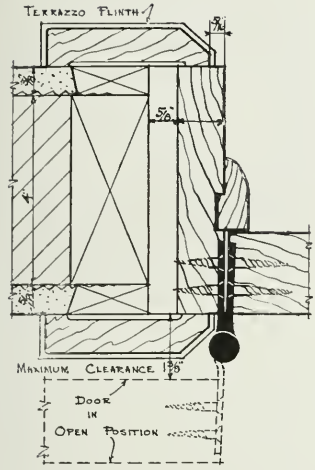
Most everyone has heard about the Hetch Hetchy project. It is recognized as one of the greatest engineering undertakings in the West. The Hetch Hetchy dam forms an important part of a great water power system, which will soon be furnishing San Francisco with unlimited water supply.

"Hetch Hetchy" is an Indian phrase, meaning loud noise. It is now proposed to name the Hetch Hetchy dam after the engineer who has played such an important part in its construction, Mr. M. M. O'Shaughnessy, city engineer of San Francisco.

The few words which appeared in the editorial columns of the San Francisco Bulletin, and which are quoted below, are quite befitting, and should reach the heart of every California engineer to the extent of requesting the mayor and board of supervisors of San Francisco to carry out the suggestion:

"The Hetch Hetchy dam has been completed. It is a monument of modern engineering genius and ranks with the greatest achievements in water conservation. The story of its construction, as well as pictures of it, will be published in newspapers and periodicals in all parts of the world, and now is the time to say by what name it should be known.

"The name Hetch Hetchy serves to describe the scheme as a whole, but there should be a distinctive designation for this distinctive feature, and the Bulletin suggests that it be called the O'Shaughnessy Dam, in honor of the city engineer that designed and supervised its construction.



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Architect:
C. H. Johnson, Minnesota State Architect

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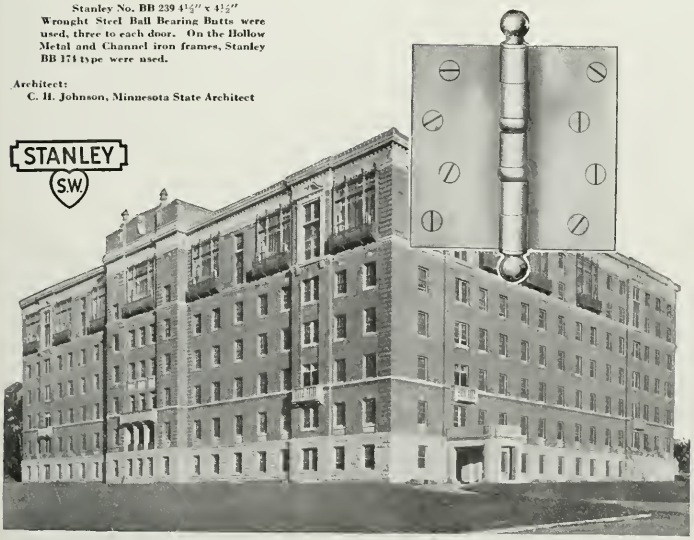


"Other men have been similarly honored for less direct responsibility for the success of a public enterprise."

A resolution indorsing the suggestion was passed by San Francisco Chapter, American Society of Engineers, and a copy was mailed to Mr. O'Shaughnessy, who replied as follows:

"I have your letter of March 14th, enclosing copy of resolution passed by your body March 13th, 1923, in which you make certain recommendations with regard to the naming of the Hetch Hetchy dam.

"I am deeply grateful for the thoughtfulness and consideration of your body and the kindly tribute they pay to my efforts on behalf of the city of San Francisco.

"I thank you very much for the expression of your goodwill and friendship."

Building Costs

Building costs are advancing so rapidly that the average architect cannot even guess the approximate cost of proposed projects. During the actual time required to prepare plans and specifications, costs in certain lines may advance to such a level as to warrant the abandonment of the proposed improvement as a financial venture. The proposed Stevens Hotel in Chicago is an example. The attention of the editor was recently called to another similar incident where the cost of the structural steel had advanced just 100 per cent during the past six months. Certainly if structural steel and other building materials were sold at a profit one year ago it would be quite difficult to justify many of the recent advances which have taken place.

When the manufacturers and jobbers of building materials are able to advance the price of building materials the way that certain interests have, and are able to get away with it, there will be found some justification for the increase in the wage scale of building mechanics. It is rumored that the minimum wage scale for most of the Chicago building mechanics will probably be fixed at between $1.15 and $1.25 per hour after June 1st next, with the plasterers demanding a minimum wage of $2.50 per hour. If the manufacturers and jobbers of building materials and those fixing a minimum wage scale for building mechanics advance their prices beyond where buildings may be made to pay a reasonable return on the investment, then buildings will not be constructed.

Based upon the average price levels of all commodities, building costs are today not excessive, and if building costs could be stabilized at about the present levels the present construction boom, so called, would undoubtedly be extended indefinitely, but with costs advancing so rapidly there is an unknown and uncertain factor to be taken into account while considering the problem, and that is the factor of the possible net return on the investment, should prices be further enhanced.

With building costs continuing going up, rents will, of course, be advanced. Considering all of the factors, it is the editors' opinion that building costs for the balance of the year 1923 will not be at any lower level than exists today and possibly may be enhanced ten to fifteen per cent later in the season, when skilled labor receives its new wage rate and when the present limited stocks of building materials are further depleted. The wise owner who must build is the one who awards contracts immediately.—Monthly Bulletin Illinois Society of Architects.

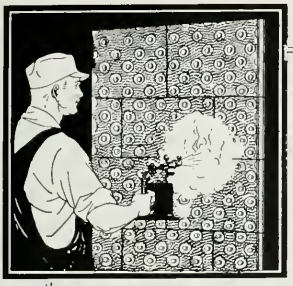
Specialists in Air Conditioning Systems

The Tiltz Engineering & Equipment Company of San Francisco and Los Angeles announce that they are devoting their entire time and services to the design and installation of air conditioning systems.

A recent installation of this company, and one that is conceded to be the most elaborate ventilating and cooling system of any cafe in the West was for Tait's Incorporated in Los Angeles. The ventilating and cooling systems of both the Superba Theatre building and the Pantages Theater in Los Angeles are being remodeled and adjusted. Two other recent installations were for the Montmarte Cafe in Hollywood and the Angelus Temple in Los Angeles. The latter building is constructed of reinforced concrete and has a seating capacity of over five thousand. A rather interesting and successful cooling and ventilating installation was made by the above company at the Mission Theater in Riverside. This theater is owned by the well-known West Coast Theater Corporation.

The success of the Tiltz Engineering & Equipment Company is attributed primarily to the technical and practical skill of the air conditioning engineers on the engineering staff, together with the fact that the company assumes entire responsibility for the ultimate success of the installation when designed and executed by them. Specialization and "Centralized Responsibility" is the basis of operation of this growing organization, and it is quite evident their services fill a long-felt need.

Mr. J. E. McClellan, formerly engineer for the American Blower Company, has assumed charge of the San Francisco office. Larger offices have been estab-



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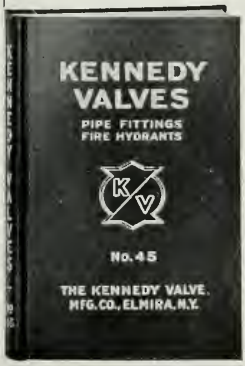

—a practical reference book for all valve users; convenient in size and arrangement. More than 500 different types and sizes are described and listed—a range that covers all usual requirements. If you use valves, you should have the Kennedy Valve Book—it explains the principles of modern valve design, points out the features of construction necessary to assure satisfactory valve service, helps to make an exactly suitable selection for your particular purposes, and gives practical suggestions for the proper installation and care of valves.

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lished in Los Angeles at No. 1112 West Sixteenth street. Mr. T. B. Thomas, formerly connected with the San Francisco office, has been transferred to the Los Angeles office and will take charge of the promotion department.

Getting a Line on Paint Practice

A service of special interest to manufacturers from the viewpoint of economy and the prevention of deterioration has been put into effect by the paint department of the du Pont Company. This service consists of a paint survey made by experts, and its purpose is to inform plant managers if their present practice in painting is correct, and how their needs, if they have any, can be met through the new developments of special surface coverings, which are constantly being brought out by the research men in the paint and color business.

A large paper manufacturing concern in the East recently had such a survey made, and the results showed that in general their plant was in very good shape, with walls and ceiling in practically all departments effectively painted to secure the maximum of efficiency and economy. Their system of painting certain parts with distinctive colorings was shown to be excellent. In certain other places it was pointed out that owing to excessive moisture conditions certain kinds of paint products could be used, which would tend to stand up effectively against the conditions existing. Other recommendations for coatings that would lengthen the life of certain parts were made to cover specific needs of this plant. The recommendations were made generally, and as a result of the survey the factory people were able to acquire a far broader idea of what actual benefit could be derived from the practice of putting the right paint in the right place.

Awarded Avery Prize

Architect Gilbert Stanley Underwood, 6779 Hollywood boulevard, has been awarded the Avery prize for an entry in the last annual exhibit by the Architectural League of New York. The award was made in recognition of merit in a joint display of architecture and sculpture in collaboration with James S. John Novelli, Eastern sculptor. Mr. Underwood is a Hollywood man, who fitted himself at Yale and Harvard, beginning his practice in New York and Boston.

Masonic Building

Architect Ralph D. Taylor of Susanville, Lassen County, has awarded a contract for the erection of a $9000 residence for Mr. C. H. Bridges and the construction is under way. Mr. Taylor has been commissioned to prepare plans and specifications for a new Masonic temple at Susanville, to cost $30,000.

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Field of the Contractor

Specifications from the Viewpoint of a Contractor*

By WILLIAM F. WISCHMEYER

I know of no subject of more vital interest to the profession, nor one that is approached from so many different angles, than the production of specifications. I shall endeavor to tell you as briefly as possible what I have gained from my experience as chief draftsman and specification writer in the offices of Mauran, Russell & Crowell, and as an estimator and building superintendent in the offices of James Stewart and Company.

I am going to talk on specifications from the viewpoint of a contractor, estimator and sub-contractor, who must estimate on them, as I feel that very few architects are able to obtain this viewpoint unless they have had actual experience in this work. My idea is to bring out the real value of the specification after it leaves the architect's office.

In the contractor's office the estimators call specifications "the vaudeville side of architecture" because of the humorous expressions contained in them. The estimator invariably makes notes of the contradictory things he finds and with his friends gets together and has a good laugh over them.

First of all, what is a specification? Most specification writers define the documents as a description of materials and workmanship entering into the production of a certain type of structure. We learn from this that materials and workmanship form the backbone of the document, while general divisions and notes govern requirements for certain specification work. In discussing the subject it might be as well to follow the order in which the specifications are written. First—General Conditions; second—Materials; third—Workmanship.

Speaking of general conditions, I have always liked to define general conditions as "obligations" which must be assumed by the owner, architect, and contractor respectively. It has frequently been the case that general conditions were used as a club to brandish over the head of the contractor. Many architects use lengthy general conditions which incorporate much that rightly belongs to the contract agreements, and frequently the conditions of the two documents clash. The two instruments should be complementary to one another, and should agree in both spirit and letter. We have found that to incorporate a phrase in our contract stating how monthly payments should be made, referring to such and such an article in the general conditions, always takes care of the situation no matter what conditions govern. Often paragraphs are written into the specifications in which the architect binds himself to certain obligations he has no right to assume, later neglecting them, and as proceedings ensue he becomes a burden instead of a protection to his client.

Many architects insert in the general conditions paragraphs which safeguard against many errors or omissions on the part of the contractor, so that the contractor loses interest in work. In my opinion this is unjust, and I have known occasions while estimating when both sub-contractors and general contractors have refused to submit figures due to the unfairness and the confusion in the general conditions. Entirely frank and clear general conditions, without any intention of putting it over on the contractor, never fail to bring in a correct bid. In other words, the general conditions should express the obligations of the contractor and state what he is to include in his estimate in addition to materials and workmanship under the various headings and sub-headings.

I have taken from the office a set of general conditions Mr. Russell, Mr. Mauran and myself have labored over. I am not reflecting upon the A. I. A. general conditions. We have gone into them and are not using them, as we feel the general conditions of the A. I. A. are too lengthy. If you were employed in a contractor's office and could see the sub-contractors come in to take off quantities and never look at the general conditions, you would change your opinion. They turn over the pages to their work, take off quantities, make notes of their specification parts, and go on about their business, and then send in the estimate.

We have analyzed many things in condensing our general conditions to about four pages. At the outset we state what the owner is obligated to do under these

* Abstract of an address before the Illinois Society of Architects.

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general conditions. He reserves the right to reject any and all bids and to let the work to other contractors, and reserves the right to select contractors, paying a preference. He is to make certain payments and take out and pay for fire and cyclone insurance, and to pay for fuel to heat the building only from the time the plaster is dry.

Among other duties, the architect approves samples and materials, examines shop drawings, and issues promptly certificates of payment.

The obligations of the contractors are: He is required to sign a contract to perform the entire work in a satisfactory manner. Where contractors are strangers in the office, we attach our contract form to the specifications, giving them a chance to see the contract they are to sign. The contractor must select capable sub-contractors only, and shall not settle without the consent of the architect, and shall pay the sub-contractor to the extent of the sub-contractor's interest in the work; he must give the sub-contractor an opportunity to be present and submit evidence in any arbitration; he must be bound to the sub-contractor by all obligations that the owner assumes to the contractor under the general conditions, drawings and specifications; he must be solely responsible for the proper execution of the work and must furnish satisfactory surety bond for a certain per cent of the work; and when required must keep the building heated until the plastering work is completed; must take out and pay for all forms of insurance except fire and cyclone, which the owner will pay for, and be solely responsible for accident or injury to employees or the public. He must examine and check drawings and specifications, and if discrepancies are found report to architects. He must not require architects to inspect materials out of the city except at the expense of the contractor. He must keep on the work at all reasonable hours a competent superintendent satisfactory to the architect, with full authority to direct the work, receive instructions and give all necessary information that may be required. The contractor must not consider the issuance of certificates of payment as acceptance of the work. He must keep the building reasonably clean and collect and remove from the premises all rubbish caused by the trades under his contract. He must see that each branch of the work will be installed by persons whose ability to execute it has been satisfactorily demonstrated to the architect. Then there are also paragraphs calling attention to permits, royalties, licenses, fees, municipal ordinances, state laws, and fire insurance bureaus.

That will give you an idea of the gene-

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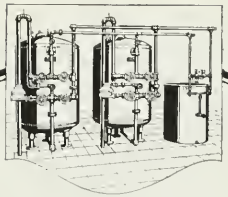
ral conditions that we have built up in our office. We felt that in this way the contractor would be given the information that would obligate him in the work, and at the same time, wherever it would be necessary, he could make a charge against the contract for it, and I believe there is nothing I have mentioned which would conflict with the general contract. We have had these general conditions and our contract, as drawn up, turned over to lawyers, and they brought back the information that they could see no conflictions in our contract and general conditions.

Next in order is materials. Of all the items in the specifications, I consider it of prime importance to mention the exact kind and quality of material desired by its trade name. Another difficulty is the placing of materials in their wrong classification so that there is confusion as to the trade name, and it often happens that the same kind of material is placed under several different headings. I recall once that when working as an estimator we had to tear down an entire specification and place the materials in their proper positions in order to make an accurate estimate.

Right here I might mention what I think to be some of the qualifications a specification writer should have. He should be well versed in building construction. This requires constant study and a complete and comprehensive catalog file. An architect or designer will have a superficial acquaintance with materials and will use certain materials in design which will not weather well, and it should be the privilege and duty of the specification writer to enlighten him on the subject and to suggest proper materials. Such co-operation between designer and specification writer will produce the best results, as I know that designers have very little time to go into the quality of material.

Another important factor is the necessity of keeping in touch with the chief draftsman, gaining through him all of the information required, and seeing that no mistake is made in detailing the work. This supervision will allow the specification writer to investigate the conditions before the final rush to get out the specifications.

The specification writer should keep in touch with new materials and should make it a point to investigate results of those he has used. He should never fail to visit buildings for which he has written specifications. He should fairly constantly keep in touch with the superintendent and consult him frequently about specifications and drawings and seek information about how he might improve his work. He should consult with contractors and sub-contractors, and never



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refuse to give a few minutes of his time to all material men.

In this connection a good catalog system is of great value. I fear that many of us neglect material men. I appreciate the fact that if we would allow it, they would come into our offices in droves and bother the life out of us. As a rule, I have these men come in to see me at a certain hour, which I have set aside during the day to get acquainted with new materials. The specification writer should know about materials because he writes about the grades and kinds of materials the designer or draftsman places upon the drawing, and as a consequence he must know more about materials than anyone in the office.

Workmanship, as I understand it, means the skill and the knowledge in the placing of certain materials demanded of the workman in order that the work may be executed in a satisfactory manner. In this connection, the specification writer should discuss with the designer the way in which he wants the materials prepared. For instance, the specification writer may say that the job is to be laid in cement mortar perfect to the line, all joints troweled, weather cut, etc. The designer goes out to the job and sees it and then rushes back to say that he had a cut joint in mind and the workmanship has practically destroyed his entire scheme. This does not mean that the designer should be hampered by the specification writer or chief draftsman, because the design should be studied from every angle before being condemned as being impractical.

How does the specification writer gain this information as to workmanship? First of all, he must be familiar with materials. He should have spent a few years drafting, several years as a superintendent, and should have made it his business to visit as many manufacturing plants as possible to acquaint himself with the manufacturing processes. Then he should place his confidence with reliable contractors and sub-contractors so that he can obtain first-class information from them. It is an excellent plan to visit buildings of high-grade contractors and architects and compare them with similar work of contractors of less ability. The specification writer learns much of workmanship by observation. I think this covers most of the important aspects of materials and workmanship.

I want to talk about my method of building specifications from the working drawings. We might at this point consider carefully that the specifications do not serve the architect particularly but that they concern the contractor, estimator, material man, architect's superintendent, and manufacturer. Therefore, in writing specifications, these men should constantly be borne in mind. When plans and specifications are ready, the contractor is summoned, given prints and specifications, and is requested to return with his bid at some near future date. If a satisfactory figure is to be obtained, every consideration must be given to the contractor to facilitate his work by describing the work in the most intelligent manner, and fully describing materials in detail as to quality and construction, leaving nothing in doubt. I might mention that I go this far—I refer to catalogs and settle any doubts by referring to an article by its trade name. There have been some questions raised as to this method, but why not refer to an article by its trade name—it saves the estimator a lot of time in looking up catalogs for a thing that fits the general specifications.

I keep in constant touch with the chief draftsman, and when the drawings are approximately 90 per cent completed, I secure a set of prints and a tablet, on which I make a list of general headings in alphabetical order as they occur, placing the name in the lower right hand corner, and leaving about two or three blank sheets after each alphabetical heading, bearing in mind the trades engaged in the work, and freely consulting my pamphlet on Jurisdictional Awards in selecting the trades.

In dealing with materials which enter into the work, I select my material and place a note on the drawings as to which material has been decided upon, making sure that the information is placed on all sections and in plans and elevations to explain the work more thoroughly. I do not allow draftsmen to place notes on the drawings; in fact, it is absolutely forbidden in our office unless they are requested to do so by me. These sheets of notes which I make are to be kept as record sheets, and my idea in doing this is to avoid conflict after collecting materials in their proper headings on these sheets. After collecting these various materials properly, I assemble the sheets in the order I wish to classify the specifications, numbering with red pencil the notes in the order I wish to call attention to them. I then proceed to dictate the first draft of the specifications, requesting the stenographer to leave plenty of margin for corrections and additions. These sheets I treasure.

In the first paragraph of each heading I call attention to the general conditions. Following this are notes such as alternates, allowances, etc., calling the contractor's attention to items specified in other branches of the work, and under these particular notes the question of hoisting materials is decided. We usually specify that the contractor must hoist all materials at the building or fur-

nish hoist and power, and the sub-contractor is to place the material on the hoist and remove it at the proper floor level. The sub-contractor readily sees he has nothing to do with his material but bring it there and deliver it to the hoist.

The question of work, or scope of work, or work included, is next discussed. The estimator's attention is called to all work specified under this particular heading, placing it in the order as I have numbered the items in red pencil on my notes. The various materials are assembled in order so that when the contractor takes off his quantities he finds his materials all listed in one place and not scattered throughout the specifications.

I next mention workmanship, stating the quality of work we expect in the type of building to be erected, and bearing in mind that a warehouse is not a hotel or a residence and should not require the same quality of workmanship.

Following workmanship, I treat the items under extent of work and describe in detail materials and methods of construction. In carpentry I include the work in general pertaining to carpentry specifications; then from my list of notes explain in detail materials and workmanship in various items. I may discuss the joists and describe them in detail, but I try as much as I can to follow the job through as the work progresses in the building. The estimator likes best to take it off that way.

Under cabinet work, marble work, tile work and similar materials, I specify general items under their proper heading, such as trim, base, architraves, picture moulds, etc. Then when it comes to certain specially designed rooms, I specify that room complete, going on to the next special room for its treatment.

Above all, I avoid the words "or equal" as I find them a bugbear. I never use them in my specifications as I have invariably found there is no "or equal."

During the time I am preparing these preliminary specifications the draftsmen are completing the drawings. When the drawings are practically completed I make sure that all materials are properly noted, selections properly made, and should anything have been added, I make pencil notes on the drawings and have them completed. At the same time I correct the specification draft and turn it over to the stenographer for final writing.

I avoid the practice of sending out letters after plans are issued calling attention to errors, for fear that some contractor may not be reached and will submit his bid without correction. The specification writer should be well versed and accurate and should be responsible for any error in judgment or selection of material.

There is one point I want to emphasize. The architect should realize that the specification writer should really be the man at the head of the drawings. The chief draftsman should control the men and constantly work with the specification writer.

Rolling Partitions and Wardrobes

The J. G. Wilson Corporation, 11 East 36th street, New York City, has recently published a new catalogue devoted to rolling partitions and wardrobes, and the latter are appealing strongly to architects because they reduce building costs and floor space. Many schools in Southern California have been equipped with these wardrobes, and they are said to be giving satisfaction.

In a preface the following paragraphs are published:

"Wilson hygienic wardrobes effect important economies in space and construction cost, as compared with cloakrooms. The economy of space is an item of constantly increasing importance; the economy in construction cost more than pays for the wardrobes.

"Their hygienic feature is of equal, if not of greater importance. By means of a current of air (drawn in through a flue), which passes through the wardrobes constantly, clothing hung in them is purified and dried, and the air kept sweet and clean. Hot water or steam pipes, so placed as to run through the wardrobes, assist in drying their contents on wet days.

"Another feature which is appreciated by teachers is the fact that Wilson wardrobes are placed within the classrooms where they are constantly under the teacher's eye—an obvious and valuable aid to the maintenance of discipline and proper conduct."

Granted Certificates

At a recent meeting of the California State Board of Architecture (Northern District) the following were granted certificates to practice architecture in the state:

Archie Thomas Newsom, Nevada Bank building, San Francisco; Edward L. Frick, 251 Kearny street, San Francisco; Frederick R. Collins, 1032 Hyde street, San Francisco.

A temporary certificate was issued to Beezer Brothers of Seattle, Washington, who have come to San Francisco to design the new St. Dominic's Church.

Pelton Manager Returns

Mr. Ely C. Hutchinson, vice-president and general manager of the Pelton Water Wheel Company, has returned to San Francisco from a month's business trip in the East. Mr. Hutchinson spent most of his time at Philadelphia, the headquarters of Wm. Cramp & Sons Ship and Engine Building Company, associate of the Pelton Company.

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Demand for Venetian Blinds

The Western Blind & Screen Company, Los Angeles, represented in San Francisco by Edward C. Dehn and C. F. Weber & Company, report that their business last year more than doubled, and that Western Venetian blinds are being used in practically every country in the world. Sales in the East and Middle West last year and the first four months of this year exceeded all expectations. Among the more important installations of recent date are the following: 800 windows in the new twelve-story Bank of Italy building, Los Angeles; 550 windows in the fifteen-story Old National Bank building at Spokane; 999 windows in the San Jacinto Life Insurance building at Beaumont, Texas; 850 windows in the Medical Arts building at Dallas, Texas; also the Federal Reserve Bank building at Kansas City (a twenty-story structure), and Federal buildings at Houston and Dallas, Texas and Oklahoma City. The Los Angeles Junior Orpheum building is completely equipped with Western Venetian blinds, as is the new Pantages Theater building in the same city; the Matti building in Fresno and the Fidelity branch of the Pacific Southwest Trust and Savings Bank building.

The company has recently built a factory at Kansas City to take care of the Middle West and Eastern business, and is now enlarging its Long Beach avenue factory in Los Angeles. The company manufactured and installed in 1923 more than 25,000 blinds—a record without precedent.

Consulting Engineers Open Los Angeles Office

The Charles T. Phillips Company, consulting engineers, have opened offices in the Wesley Roberts building, Los Angeles, and will specialize in preparing plans and specifications of heating, ventilating, electric wiring, illumination and plumbing for architects.

The personnel of the firm will be Mr. Charles T. Phillips, consulting engineer, San Francisco, who has been consulting engineer for architects of over a thousand buildings in the last fifteen years; Mr. Arthur Kempston, recently engineer for the Pacific Fire Extinguisher Company, Los Angeles; and Mr. Fred B. McNally, mechanical engineer, Fresno. Mr. McNally was for seven years with a consulting heating engineer and six years mechanical engineer for Architects Bliss and Faville of San Francisco. The new firm already has considerable work in the Southern part of the state and some commissions in adjoining states.

Statement of the Ownership, Management, Circulation, Etc., Required by the Act of Congress of August 24, 1912,

Of THE ARCHITECT AND ENGINEER, published monthly at San Francisco, California, for April 1st, 1923.

State of California, } ss.
City and County of San Francisco }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared W. J. Kierulff, who, having been duly sworn according to law, deposes and says that he is the business manager and publisher of THE ARCHITECT AND ENGINEER, Inc., and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Name of — Post Office Address

Publisher, W. J. L. Kierulff, 627 Foxcroft Bldg., San Francisco.

Editor, F. W. Jones, 627 Foxcroft Bldg., San Francisco.

Business Manager, W. J. Kierulff, 627 Foxcroft Bldg., San Francisco.

2. That the owners are: (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent or more of the total amount of stock.)

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None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is——. (This information is required from daily publications only.)

W. J. L. KIERULFF, Business Manager.

Sworn to and subscribed before me this 29th day of March, 1923.

W. W. HEALEY.

Notary Public in and for the City and County of San Francisco, State of California.

My Commission expires August 29th, 1923.

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Present Cost of Building Materials

THESE quotations are based on reliable information furnished by the San Francisco material houses. Date of quotations, May 20, 1923.

All prices f. o. b. cars San Francisco or Oakland For country work add freight and cartage to prices given.

American Institute of Architects' Fees

New work—Usual rate, 6 per cent minimum charge recommended by the Institute. Alterations—7 to 10 per cent as a minimum.

High class residence work—10 per cent as a minimum. Editor's Note—These rates not mandatory.

Bond—1½% amount of contract.

Brickwork—
Common, $36.00 per 1000 laid.
Face, $80.00 per 1000 laid.
Enamel, $150.00 per 1000 laid.
Common, f. o. b. cars, $15.50, plus cartage.
Face, f. o. b. cars, $50.00 per 1000, carload lots.

HOLLOW TILE FIREPROOFING (Delivered to building in carload lots.)

12x12x3 in.	$102.00 per M
12x12x4 in.	115.00 per M
12x12x6 in.	160.00 per M
12x12x8 in.	165.00 per M

Hod carriers, $6.50 per day.
Bricklayers, $10.00 per day.
Lime—$2.25 per bbl.; carload, $2.15

Composition Floors—24c to 50c per sq. ft. In large quantities, 24c per sq. ft.

Composition Stucco—$1.90 to $2.10 per sq. yard (applied).

Concrete Work (material at San Francisco bunkers)—

No. 3 rock	$2.15 per yd.
No. 4 rock	2.30 per yd.
Niles pea gravel	3.50 per yd.
Niles gravel	2.35 per yd.
Niles top gravel	2.75 per yd.
City gravel	2.15 per yd.
River sand	1.75 per yd.
Delivered bank sand	1.00 per yd.

SAND

Del Monte	$1.25 to $1.50 per ton
Fan Shell Beach (Car lots, f. o. b. Lage Majella)	2.50 to 3.00 per ton
Cement (f. o. b. cars)	$3.03 per bbl.
Rebate for sacks, 10c each.	
Atlas "White"	$10.50 per bbl.
Medusa "White"	$ 9.75 per bbl.
Forms, Labors	$30.00 per M

Wage—

Concrete workers	$5.00 per day
Cement finishers	8.50 per day
Laborers	5.00 per day

Dampproofing—
Two-coat work, 25c per yard.
Membrane waterproofing—4 layers of P. B. saturated felt, $0.25 per square.
Hot coating work, $2.00 per square.
Wage—Roofers, $7.50 per day.

Electric Wiring—$7.00 to $11.00 per outlet for conduit work (including switches).
Knob and tube average $3.25 to $6.00 per outlet.
Wage—Electricians, $8.00 per day.

Elevators—
Prices vary according to capacity, speed and type. Consult elevator companies. Average cost of installing an automatic elevator in 4-story bldg., $3,800; direct automatic, about $3,400.

Excavation—
$1.50 per yard, if sand. Teams, $10.00 per day. Trucks, $21 to $30 per day.
Above figures are an average without water. Steam shovel work in large quantities, less; hard material, such as rock, will run considerably more.

Fire Escapes—
Ten-foot balcony, with stairs, $105.00 per balcony.

Glass—(Consult with manufacturers.)
21 ounce, 20c per square foot.
Plate, $1.85 per sq. ft.
Art, $1.00 up per square foot.
Wire (for skylights), 40c per sq. ft.
Obscure glass, 28c per square foot.
Note—Add extra for setting.
Wage—Glaziers, $8.00 per day.

Heating—
Average, $2.25 per sq. ft. of radiation, according to conditions.
Wage—Steamfitters, $9.00 per day.

Iron—Cost of ornamental iron, cast iron, etc., depends on designs.
Wage—Iron workers, bridge and structural, $9.00 per day.
Architectural iron workers, $7.00 per day.

Lumber—(Prices delivered to bldg. site)
Common, $42 per M (average).
Com'n O.P. (select, avrg...$45.00 per M

Flooring—

1 x 6 No. 3—Form lumber	$30.00 per M
1 x 4 No. 1 flooring	80.00 per M
1 x 4 No. 2 flooring	73.00 per M
1 x 4 No. 3 flooring	55.00 per M
1 x 6 No. 2 and better flooring	70.00 per M
1¼ x 4 and 6 No. 2 flooring	75.00 per M

Slash grain—

1 x 4 No. 2 flooring	63.00 per M
1 x 4 No. 3 flooring	55.00 per M

No. 1 common run to

T. & G.	$45.00 per 1000
Lath	8.00 per 1000

Shingles—(Add cartage to prices quoted)

Redwood, No. 1	$1.25 per bdle.
Redwood, No. 2	1.10 per bdle.
Red Cedar	1.50 per bdle.

Building Paper—

1 ply per 1000 ft. roll	$6.25
2 ply per 1000 ft. roll	9.60
3 ply per 1000 ft. roll	14.55
Sash cord com. No. 7	1.25 per 100 ft.
Sash cord com. No. 8	1.40 per 100 ft.
Sash cord spot No. 7	1.90 per 100 ft.
Sash cord spot No. 8	2.30 per 100 ft.
Sash weights cast iron	60.00 Ton

Hardwood Flooring—

	13/16x3¼" T & G Maple	$170 M ft.	
	13/16x2¼" T & G Maple	175 M ft.	
	⅞x3½" Sq. Edge Maple	143 M ft.	
		13/16x2¼" T&G	⅜x2" T&G	5/16x2" Sq. Ed.
Clr.	Qtd. Oak	$243 M	$170 M	$205 M
Sel.	Qtd. Oak	195 M	125 M	150 M

Wages as noted under various trades is minimum scale. All trades in San Francisco are paying from 50c to $3.00 a day bonus.

Clr. Pla. Oak	195 M	127 M	150 M
Sel Pla. Oak	175 M	107 M	135 M
Clear Maple	170 M	115 M	
Orion	140 M	100 M	100 M
Bagac	130 M	90 M	90 M
Laying and Finishing	16c ft.	15c ft.	13c ft.

Wage—Floor layers $9.35 per day.

Millwork—
O. P., $125 and up per 1000. R. W., $140 and up per 1000.
Double hung box window frames, average) with trim, $8.00 and up, each.
Doors, including trim (single panel), $11 and up, each.
Doors, including trim (five panel), $9.00 each.
Screen doors, $3.50 each.
Cases for kitchen pantries seven feet high, per lineal foot, $9 each.
Dining room cases, $8.00 per lineal foot.
Labor—Rough carpentry, warehouse heavy framing (average) $16 per m.
For smaller work, average, $28.00 to $35.00 per 1000.
Wage—Carpenters, $8.00 per day.
Laborers—$5.00 per day.

Marble—(Not set), add 40c to 60c per ft. for setting.

Columbia	$1.60 sq. ft.
Alaska	1.60 sq. ft.
San Saba	3.15 sq. ft.
Tennessee	2.00 sq. ft.
Verde Antique	3.75 sq. ft.
Westfield Green	3.50 sq. ft.

Wages—Marble setters, $9.00 per day; helpers, $5.50 per day. Marble polishers and finishers, $6.00 per day.

Painting—

Two-coat work	35c per yard
Three-coat work	50c per yard
Whitewashing	5c per yard
Cold water painting	9c per yard

Turpentine, $1.68 per gal. in cases and $1.53 per gal. in tanks.
Raw Linseed Oil....$1.35 per gal. in bbls.
Boiled Linseed Oil..$1.37 per gal. in bbls.
Pioneer white and red lead, 12½c lb. in one-ton purchases; 14½c lb. for less than 500 lbs.
Wage—Painters, $8.00 per day.
Note—Accessibility and conditions cause wide variance of costs.

Patent Chimneys—

6-inch	$1.50 lineal foot
8-inch	1.75 lineal foot
10-inch	2.25 lineal foot
12-inch	3.00 lineal foot

Pipe Casings—14" (average), $7.50 each.

Plastering—
Interior, on wood lath, 70c per yard.
Interior, on metal lath, $1.30 per yard.
Exterior, on brick or concrete, $1.30 per yard.
Portland White, $1.75.
Interior on brick or terra cotta, 60c to 70c per yard.
Exterior, on metal lath, $1.85 to $2.25 per yard.
Wood lath, $8.00 at yard per 1000.
Metal studding, $1.25 to $1.50 per yard.
Suspended ceiling and walls (metal furring, lathing and plastering), $2.00 per yard.
Galv. metal lath, 33c and up per yard, according to gauge and weight.
Lime, f. o. b. S. F. warehouse, $2.50 bbl.
Lime, bulk, per ton of 2000 lbs., $19.50
Hardwall plaster, $20,00 per ton, f. o. b. warehouse. (Rebate on sacks, 15c.)
Finishing plaster (carload lots), $19.00.
Hydrate of lime, $19.50 per ton, f. o. b. warehouse.
Wage—Plasterers, $10.00 per day.
Lathers, $8.00 per day.
Hod carriers, $7.00 per day.

Plumbing—
From $75.00 per fixture up, according to grade, quantity and runs.
Wage—Plumbers, $9.00 per day.

Reinforcing Steel—
Base price for car load lots, $3.80 per 100 lbs., f. o. b. cars on docks.
Average cost to install, $25 per ton.
Wage—Housesmiths, $8.00 per day.

Roofing—
Five-ply tar and gravel, $6.50 per square for 30 squares or over.
Less than 30 squares, $6.25 per square.
Tile, $35.00 to $50.00 per square.
Redwood Shingles, $12.00 per square in place.
Cedar Shingles, $12.00 per sq. in place.
Reinf'd Pabco, 7 yr. roof, $7.50 per sq.
Reinf'd Pabco, 10 yr. roof, $8.25 per sq.
Reinf'd Pabco, 20 yr. roof, $14 per sq.
Recoat, with Gravel, $3.00 per square.
Wage—Roofers, $8.00 per day.

Sheet Metal—
Windows—Metal, $2.00 a square foot.
Fire doors, (average), including hardware, $2.30 per sq. ft.

Skylights—
Copper,$1.25 a square foot (not glazed)
Galvanized iron, 35c a square foot (not glazed).
Wage—Sheet metal workers, $8.50 per day.

Stone—
Granite, average $8.50 sq. ft. in place.
Sandstone, average $6.00 sq.ft. in place.
Indiana Limestone, $4.25 per sq. ft. in place.
Wage—Stone cutters, $8.00 per day.
Stone setters, $8.50 per day.

Store Fronts—
Zouri copper sash bars for store fronts, corner, center and around sides, will average 85c per lin. ft.
Zouri Underwriters' Specification Safety sash and bars, $1.10 per lin. ft.
Note—Consult with agents.

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This quotation is an average for comparatively small quantities.
Light truss work higher; plain beam and column work in large quantities, less.
Cost of steel for average building (erected), $115 per ton.

Steel Sash—
All makes, from S. F. stock, 26c to 34c per sq. ft.
All makes, plant shipment, 28c to 34c per sq. ft.
(Includes mullions and hardware.)

Tile—White glazed, 80c per foot.
White floor, 80c per foot.
Colored floor tile, $1.00 per foot.
Promenade tile, $1.00 per sq. ft. laid.
Wage—Tilesetters, $8.00 per day.

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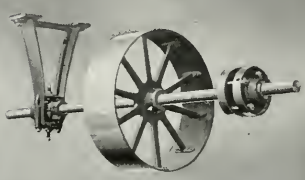

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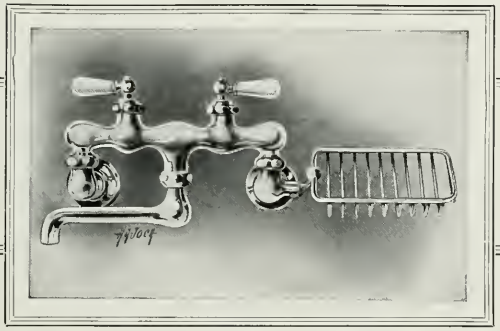

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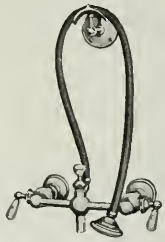

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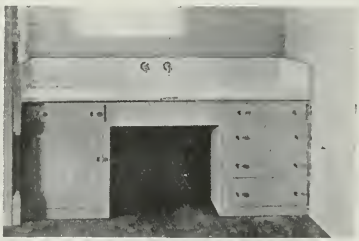
The Petrium Sanitary Sink



Makes Kitchen Work Quieter

Because of the elasticity of the composition of its surface The Petrium Sanitary Sink reduces breakage and the jarring, rattle and clatter of dishes on the drainboards to a minimum.

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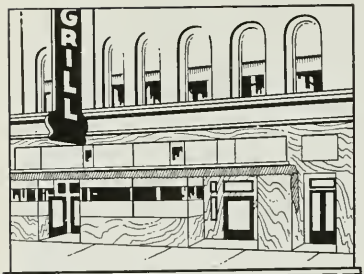

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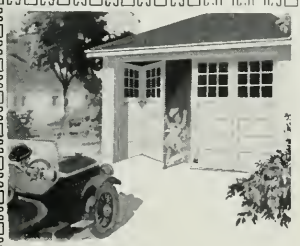

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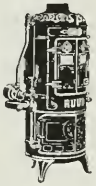

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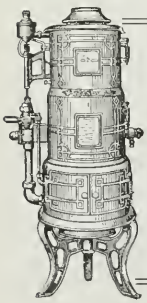

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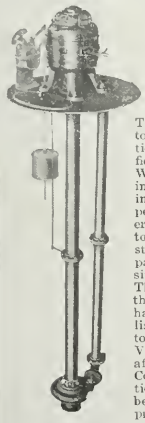

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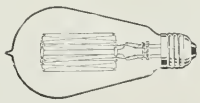

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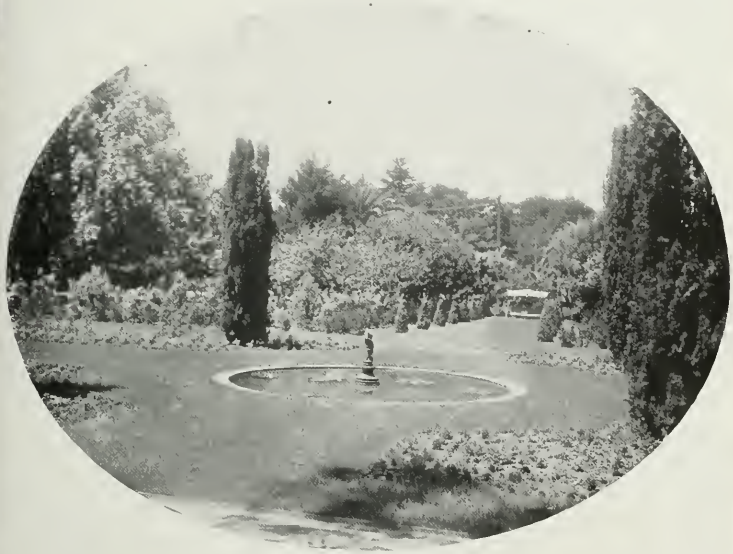

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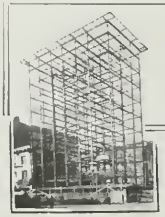

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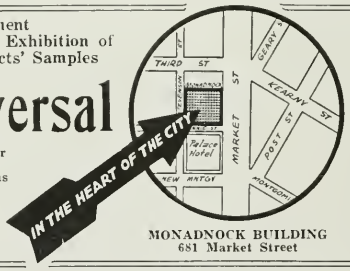

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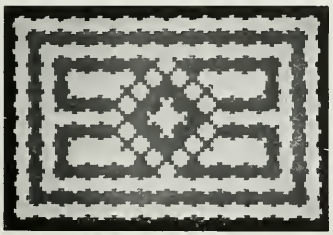

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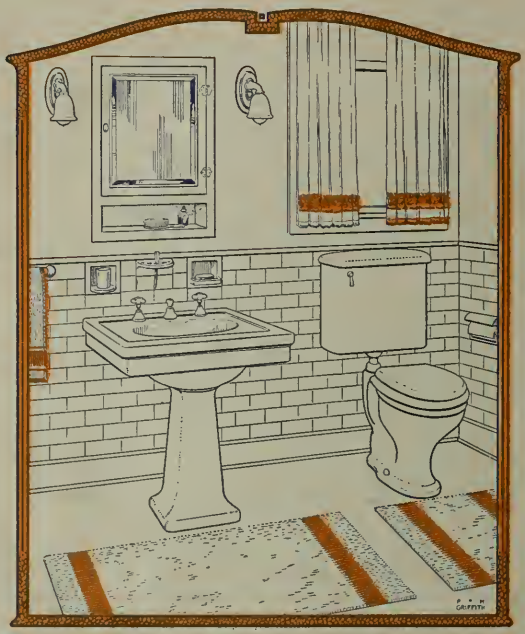

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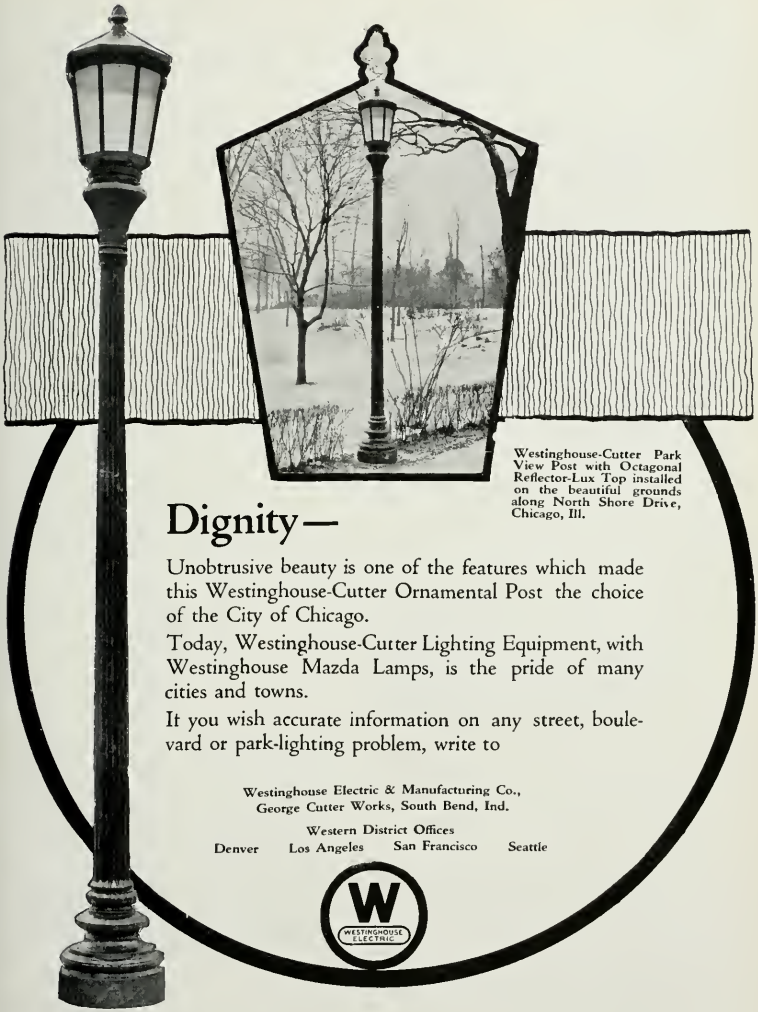

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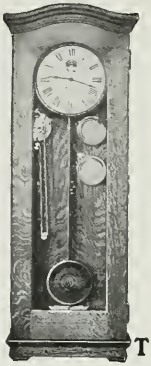

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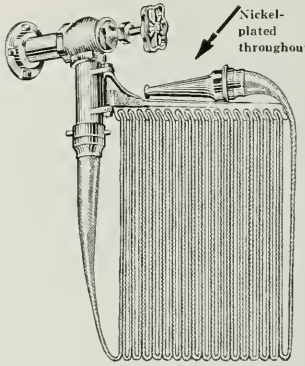

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On this page is shown a front view of the house and a close-up of the textural finish employed. The variety of textural finishes that can be obtained with the use of ATLAS WHITE is limited only to the ingenuity and artistry of the architect and workman and they can with this material express their own ideas to achieve results that could not be secured with any other material.

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- Johns-Manville Inc., of California, 500 Post street, San Francisco.
- Western Asbestos Magnesia Company, 25 South Park, San Francisco.
- Jones Bros. Asbestos Supply Co., Inc., 512 Second St., San Francisco.
- Plant Rubber & Asbestos Works, 537-539 Brannan Street, San Francisco.

ART METAL
- Federal Ornamental Iron and Bronze Co., 16th St., and San Bruno Ave., San Francisco.
- Michel & Pfeffer Iron Works, 1415 Harrison street, San Francisro.
- California Artistic Metal & Wire Co., 349 Seventh street, San Franciaco.

ARCHITECTURAL TERRA COTTA
- Gladding, McBean & Company, Crocker Bldg., San Francisco.
- Livermore Fire Brick Works, 604 Mission St., San Francisco.
- Tropico Potteries, Inc., Glendale, Cal.

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- C. F. Weber & Co., 985 Market St., San Francisco.
- Home Mfg. Co., 543 Brannan St., San Francisco.
- Mullen Manufacturing Co., 64 Rausch St., San Franciaco.
- Pacific Manufacturing Company, San Francisco, Los Angeles, Oakland and Santa Clara.

BANK SCREEN REFLECTORS
- I. P. Frink, Inc., 77 O'Farrell Street, San Francisco.

BATHROOM ACCESSORIES
- The Fairfacts Company, Inc., 234 W. 14th St., New York.

BEDS—WALL
- California Wall Bed Co., 714 Market St., San Francisco.
- Marshall & Stearns Co., Phelan Bldg., San Francisco.
- Leverett T. Spaulding, 1041 Mission St., San Francisco.

BELTING AND PACKING
- New York Belting and Packing Company, 519 Mission St., San Francisco.
- H. N. Cook Belting Co., 401 Howard St., San Francisco.
- Plant Rubber & Asbestos Works, 537-539 Brannan Street, San Francisco.

BLACKBOARDS
- C. F. Weber & Co., 985 Market St., San Francisco, Los Angeles and Reno, Nevada.
- Stewart Sales Co., 247 Rialto Building, San Francisco.
- Wentworth & Co., 539 Market Street, San Francisco.

BLINDS—VENETIAN AND DIFFUSELITE
- The J. G. Wilson Corporation, 621 North Broadway, Los Angeles.
- Western Blind & Screen Company, factory, Los Angeles; San Francisco representatives, Edward C. Dehn, Hearst Bldg., and C. F. Webber Co.

BOILERS
- Birchfield Boiler Company, Tacoma, Washington. See advertisement for Coast agencies.
- Kewanee Boiler Company, Factory Branch, Expoaition Building, San Francisco.
- Kewanee Water Supply System, Simonds Machinery Co., 117 New Montgomery St., San Francisco.
- Main Iron Works, 1000 Sixteenth Street, San Francisco.

BONDS FOR CONTRACTORS
- Bonding Company of America, Kohl Bldg., San Francisco.
- Globe Indemnity Co., 444 California St., San Francisco.
- Fidelity & Casualty Co. of New York, Balfour Bldg., San Francisco.
- William Healey & Son, 208 Crocker Building, San Francisco.

BOXBOARD FIBRE SHIPPING CASES
- The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

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- H. Mueller Manufacturing Co., 635 Mission St., San Francisco.

BRICK FACE, COMMON, ENAMEL, GLAZED
- Remillard Brick Company, Phelan Building, San Francisco.
- Richmond Pressed Brick Co., Sharon Bldg., San Francisco. Plant at Richmond, Cal.
- Livermore Fire Brick Works and California Brick Co., 604 Mission St., San Francisco.
- United Materials Co., Sharon Bldg., San Francisco.
- Cannon & Co., Sacramento; and 77 O'Farrell St., San Francisco.

BRICK & CEMENT COATING
- Armorite and Concreta, manufactured by W. P. Fuller & Co., all principal Coast cities.
- Minwax Co., Inc., 22 Battery St., San Francisco and 653 S. Clarence St., Los Angeles.
- The Paraffine Companies, Inc., 34 First St., San Francisco.
- R. N. Nason & Co., 151 Potrero Ave., San Francisco.
- Wadsworth, Howland & Co., Inc., Jas. Hambly & Son, 1333 E. 7th St., Los Angeles, and 229 Clay St., San Francisco.

BRICK STAINS
- Samuel Cabot Mfg. Co., Boston, Mass., agencies in San Francisco, Oakland, Los Angeles, Portland, Tacoma and Spokane.
- Armorite and Concreta, manufactured by W. P. Fuller & Co., all principal Coast cities.

BUILT-IN FIXTURES
- Built-In Fixture Company, San Pablo Ave., near University Ave., Berkeley, and Hoosier Store, Pacific Building, San Francisco.

BUILDERS' HARDWARE
- Joost Bros., agents for Russell & Erwin Hardware, 1053 Market St., San Francisco.
- The Stanley Works, New Britain, Conn., Coast sales offices, San Franciaco, Los Angeles, and Seattle, Wash.
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C. H. Jensen Co., Call Building, San Francisco.
John R. Steffens-Lomax Co., Monadnock Bldg., San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco
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BUILDING TILE (Burned Clay)
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CABINET MAKERS
Home Manufacturing Company, 543 Brannan St., San Francisco.
Mullen Manufacturing Company, 64 Rausch St., San Francisco.
Lannom Bros. Mfg. Co., 5th and Magnolia Sts., Oakland.
Pacific Mfg. Co., San Francisco, Los Angeles and Oakland.
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The General Fireproofing Company, 20 Beale Street, San Francisco
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Gladding, McBean & Co., Crocker Bldg., San Francisco.
Los Angeles Pressed Brick Co., Frost Bldg., Los Angeles.
Tropico Potteries, Inc., Glendale, Cal.
United Materials Co., Sharon Bldg., San Francisco.
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Standard Electric Time Co., 461 Market St., San Francisco.
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Western Asbestos Magnesia Company, 25 South Park, San Francisco.
Ilofl Magnesite Co., San Francisco. Miller & Alf, 337 Monadnock Bldg., San Francisco, general agents.
CONCRETE BUILDING ACCESSORIES
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CONCRETE OR CEMENT HARDENER
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The General Fireproofing Company, 20 Beale Street, San Francisco
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Gunn, Carle & Co., Inc., 444 Market St., San Francisco.
Clinton Welded Wire Fabric, Wickwire Spencer Steel Corporation, 111 Townsend St., San Francisco.
Judson Mfg. Co., 817-821 Folsom St., San Francisco.
Pacific Coast Steel Company, Rialto Bldg., San Francisco.
Triangle Mesh Fabric. Sales agents, Pacific Materials Co., 525 Market St., San Francisco.
Truscon Steel Co., 709 Mission St., San Francisco.
Badt-Falk Co., Call-Post Bldg., San Francisco.
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K. E. Parker Co., Inc., Clunie Bldg., San Francisco.
Dinwiddie Construction Co., Crocker Bldg., San Francisco.
John M. Bartlett, 357 Twelfth St., Oakland.
Chas. Stockholm & Son, Monadnock Bldg., San Francisco.
Clinton Construction Company, 923 Folsom St., San Francisco.
Monson Bros., 251 Kearny St., San Francisco.
Geo. Wagner, 251 Kearny St., San Francisco.
T. B. Goodwin, 180 Jessie St., San Francisco..
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Alfred H. Vogt, 185 Stevenson St., San Francisco.
Lange and Bergstrom, Sharon Bldg., San Francisco and Washington Bldg., Los Angeles.
David Nordstrom, 4146 Emerald Street, Oakland.
Carl T. Peterson, 185 Stevenson St., San Francisco.

CONTRACTORS' EQUIPMENT
Edward R. Bacon Co., 51 Minna St., San Francisco, and Los Angeles.

CONVENIENCE OUTLETS
Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St.

CORK TILE
Van Fleet-Freear Company, 557 Howard St., San Francisco, and 420 S. Spring St., Los Angeles.

CRUSHED ROCK
Coast Rock & Gravel Co., Call-Post Bldg., San Francisco.

CURTAINS—STEEL, ROLLING, FIREPROOF
J. G. Wilson Corp., 621 N. Broadway, Los Angeles.

DAMP-PROOFING AND WATERPROOFING
Armorite Damp Resisting Paint, made by W. P. Fuller & Co., San Francisco.
"Imperial," manufactured by Brooks & Doerr, Merchants National Bank Building, San Francisco.
Samuel Cabot Co., Boston; represented in San Francisco by Pacific Materials Co., Underwood Bldg., San Francisco.
"Pabco" Damp-Proofing Compound, sold by the Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.
Western Asbestos Magnesia Company, 25 South Park, San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco

DOOR HANGERS
McCabe Door Hanger Company, leading hardware stores.
Pitcher Hanger, sold by National Mill & Lumber Co., 326 Market St., San Francisco.
Stanley Works, New Britain, Conn., Monadnock Bldg., San Francisco.

DOORS—VANISHING
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DRAIN PIPE AND FITTINGS
"Corrosiron" Acid Proof, manufactured by Pacific Foundry Co., Harrison and 18th Sts., San Francisco.

DRINKING FOUNTAINS
Haws Sanitary Drinking Faucet Co., 1808 Harmon St., Berkeley, and C. F. Weber & Co., San Francisco and Los Angeles.
Crane Company, San Francisco, Oakland, and Los Angeles.
Pacific Porcelain Ware Co., 67 New Montgomery St., San Francisco.
Haines, Jones & Cadbury Co., 857 Folsom St., San Francisco.

DUMB WAITERS
Spencer Elevator Company, 166-7th St., San Francisco.
San Francisco Elevator Company, Inc., 860 Folsom St., San Francisco.

ELECTRICAL APPLIANCE SUPPLIES
Electric Appliance Company, 809 Mission St., San Francisco.

ELECTRICAL CONTRACTORS
Butte Electrical Equipment Company, 530 Folsom St., San Francisco.
Butte Electric & Manufacturing Co., 534 Folsom St., San Francisco.
Central Electric Company, 177-79 Minna St., San Francisco
NePage, McKenny Co., 589 Howard St., San Francisco.
Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.
Globe Electric Works, 1959 Mission St., San Francisco.
H. S. Tittle, 766 Folsom St., San Francisco.
Brown-Langlais Electrical Construction Co., 313 Fifth Street, San Francisco.
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Harvey Hubbell, Inc., Bridgeport, Conn., represented in San Francisco by Garnett Young & Co., 612 Howard St.
Drendell Electrical & Mfg. Co., 1345 Howard St., San Francisco.

ELECTRIC TOWEL
The AIRDRY Electric Towel for clubs, office buildings, hotels, schools, etc., represented on Pacific Coast by Airdry Electric Service Co., Rialto Building, San Francisco.

ELEVATORS—PASSENGER and FREIGHT
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Otis Elevator Company, Stockton and North Point, San Francisco.
Spencer Elevator Company, 166-7th St., San Francisco.
San Francisco Elevator Co., 860 Folsom St., San Francisco.
Union Construction Company, Balfour Bldg., San Francisco.

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Hunter & Hudson, Rialto Bldg., San Francisco.
Ralph E. Dodge, 251 Kearny St., San Francisco.
Robert L. St. John, 1011 Flat Iron Bldg., San Francisco
Charles T. Phillips Company, Bank of Italy Bldg., San Francisco, and Roberts Bldg., Los Angeles.

FANS AND BLOWERS
Tiltz Engineering and Equipment Co., 479 Monadnock Building, San Francisco.

FAIENCE TILE
Tropico Potteries, Inc., Glendale, Cal.

FELTS
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.

FENCES—WIRE AND IRON
Standard Fence Company, 432 Bryant, San Francisco and 60th and Lowell Sts., Oakland.

FIRE BRICK, TILE & CLAY
Livermore Fire Brick Works, 604 Mission St., San Francisco.

FIRE EXIT LATCHES
Vonnegut Hardware Co., Indianapolis, Ind., represented in San Francisco by Abeel Jensen Co., Call Building.

FIRE ESCAPES
Michel & Pfeffer Iron Works, 1415 Harrison St., San Francisco.
Palm Iron & Bridge Works, Sacramento.
Western Iron Works, 141 Beale St., San Francisco.

FIRE HOSE RACKS
Plant Rubber & Asbestos Works, 537-539 Brannan Street, San Francisco.

FIRE-PROOF DOORS
Forderer Cornice Works, 269 Potrero Ave., San Francisco.
U. S. Metal Products Co., 330-10th St., San Francisco.
Kinnear Mfg. Co., represented in San Francisco by Pacific Materials Co., Underwood Bldg.
The J. G. Wilson Corporation, 621 North Broadway, Los Angeles.

FIRE SPRINKLERS—AUTOMATIC
Fire Protection Engineering Co., 67 Main St., San Francisco.
Grinnell Company of the Pacific, 453 Mission St., San Francisco.
Independent Automatic Sprinkler Co., 72 Natoma St., San Francisco.
Pacific Fire Extinguisher Co., 424 Howard St., San Francisco.

FIRE RETARDING PAINT
The Paraffine Companies, Inc., 34 First St., San Francisco.
Fire Retardent Products Co., 2838 Hannah St., Oakland. Cal.

FIXTURES—BANK, OFFICE, STORE, ETC.
Home Manufacturing Company, 543 Brannan St., San Francisco.
Mullen Manufacturing Co., 64 Rausch St., San Francisco.
C. F. Weber & Co., 985 Market St., San Francisco, and 210 N. Main St., Los Angeles, Cal.

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Carter, Bloxonend Flooring Co., Kansas, Mo., represented on Pacific Coast by H. M. Holway, 1007 Hobart Building, San Francisco.

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Bass-Hueter and San Francisco Pioneer Varnish Works, 816 Mission St., San Francisco.
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R. N. Nason & Co., San Francisco and Los Angeles.
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Murphy's Transparent Floor, Uhl Bros., San Francisco, Seattle, Portland, Oakland, Los Angeles.

FLOORS—HARDWOOD
Oak Flooring Manufacturers' Association of the United States, Ashland Block, Chicago, Ill.
Cadwallader, Gibson Co., 5th & Brannan St., San Francisco.
Parrott & Co., 320 California St., San Francisco.
Strable Hardwood Company, 511 First St., Oakland.
E. L. Bruce Co., Manufacturers, Memphis, Tenn.
White Bros., 5th and Brannan Sts., San Francisco.

FLOOR TREATMENT—HARDWOOD, COMPOSITION AND CONCRETE
Minwax Co., Inc., 22 Battery St., San Francisco and 653 S. Clarence St., Los Angeles.

FLOORS—MASTIC—FLOOR COVERING
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FLUE LINING
California Brick Company, 604 Mission St., San Francisco.

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- Mangrum & Otter, 827 Mission St., San Francisco.
- Montague Range and Furnace Co., 826 Mission St., San Francisco.

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- Home Manufacturing Company, 543 Brannan St., San Francisco.
- C. F. Weber & Co., 985 Market St., San Francisco.
- F. W. Wentworth & Co., 539 Market St., San Francisco.
- W. & J. Sloane, 216 Sutter St., San Francisco.
- Western States Seating Co., 133 Kearny St., San Francisco.

FURRING TILE (Burned Clay)
- California Brick Company, 604 Mission St., San Francisco.

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- The Stanley Works, New Britain, Conn., Coast sale offices, San Francisco, Los Angeles and Seattle, Wash.
- Richards-Wilcox Mfg. Co., Aurora, Ill., and Underwood Bldg., San Francisco.

GLASS
- American Window Glass Co., represented by L. H. Butcher Co., 862 Mission St., San Francisco.
- Cobbledick-Kibbe Glass Co., 666 Howard St., San Francisco.
- Fuller & Goepp, 32 Page St., San Francisco, and Jackson, at Eleventh St., Oakland.
- W. P. Fuller & Company, all principal Coast cities.

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- Dolan Wrecking & Construction Co., 1607 Market St., San Francisco.

GRANITE
- Raymond Granite Co., Potrero Ave., and Division St., San Francisco.

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- Coast Rock & Gravel Co., Call-Post Bldg., San Francisco.
- Del Monte White Sand, sold by Del Monte Properties Co., Crocker Bldg., San Francisco.

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- Ellery Arms Co., 583 Market St., San Francisco.
- George Trask, Durand Steel Locker Co., 76 Sacramento St., San Francisco.

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- Joost Bros., agents for Russell & Erwin Hardware, 1053 Market St., San Francisco.
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- Corbin hardware, sold by Palace Hardware Co., 581 Market St., San Francisco.
- Vonnegut hardware, sold by Abeel-Jensen Co. Call Bldg., San Francisco.

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- White Brothers, 5th and Brannan Streets, San Francisco.

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- Atlas Heating and Ventilating Company, Inc., Fourth and Freelon Sts., San Francisco.
- Alex Coleman, 706 Ellis St., San Francisco.
- Gilley-Schmid Company, 198 Otis St., San Francisco.
- Hateley & Hateley, Mitau Bldg., Sacramento.
- Mangrum & Otter, 827-831 Mission St., San Francisco.
- Lawson & Drucker, 450 Hayes St., San Francisco.
- Carl T. Doell, 467 21st St., Oakland.
- Luppen, Hawley & Thing, 906 7th St., Sacramento.
- William F. Wilson Co., 328 Mason St., San Francisco.
- W. H. Picard, 5656 College Ave., Oakland.
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- Scott Company, 243 Minna St., San Francisco.
- H. G. Newman Co., 2004 Telegraph Ave., Oakland.

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- Ruud Automatic Water Heater, sold by Ruud Heater Company, 431 Sutter St., San Francisco.

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Chicago Signal Co., represented by Garnett Young & Co., 612 Howard St., San Francisco.
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Emerson Knight, 704 Market St., San Francisco.

LANDSCAPE GARDENERS
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A. Knowles, Call-Post Bldg., San Francisco.

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Pacific Materials Co., 525 Market St., San Francisco.
The General Fireproofing Company, 20 Beale Street, San Francisco
Truscon Steel Co., 709 Mission Street, San Francisco.
Wickwire Spencer Steel Corporation, 111 Townsend St., San Francisco.

LEATHER MATS
Leather Mat Mfg. Co., 340 Sansome St., San Francisco.

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Great Western Power Company, Stockton St., near Sutter, San Francisco.
Pacific Gas & Electric Co., Sutter St., San Francisco.

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Roberts Mfg. Co., 663 Mission St., San Francisco.

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Leather Mat Manufacturing Co., 340 Sansome St., San Francisco.

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Waterhouse-Wilcox Co., Inc., 523 Market St., San Francisco.
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Coen Co., Inc., 112 Market St., San Francisco
Fess System Co., 220 Natoma St., San Francisco.
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D. Zelinsky & Sons, San Francisco and Los Angeles.
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Scott Co., Inc., 243 Minna St., San Francisco.
Wm. F. Wilson Co., 328 Mason St., San Francisco.
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Meese & Gottfried Co., San Francisco, Los Angeles, Portland and Seattle.

TRAVELING CRANES
Cyclops Iron Works, 837 Folsom St., San Francisco.

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Crane Radiator Valves, manufactured by Crane Co., Second and Brannan Sts., San Francisco.
Grinnell Co., 453 Mission St., San Francisco.
O. M. Simmons Co., 115 Mission St., San Francisco.
H. Mueller Mfg. Co., 635 Mission street, San Francisco.
Kennedy Valve Mfg. Co., 23-25 Minna street, San Francisco.

VALVE PACKING
N. H. Cook Belting Co., 317 Howard St., San Francisco.

VARNISHES
Bass-Hueter Paint Company, Mission, near 4th street, San Francisco, and all principal Coast cities.
W. P. Fuller Co., all principal Coast cities.
R. N. Nason & Co., San Francisco, Los Angeles, Portland and Seattle.
Standard Varnish Works, 55 Stevenson St., San Francisco.
The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.
Murphy's Varnish, Uhl Bros., San Francisco, Seattle, Portland, Oakland, Los Angeles.

VENEERS
White Brothers, 5th and Brannan Streets, San Francisco.

VENEERED PANELS
White Brothers, 5th and Brannan Streets, San Francisco.

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West Coast Porcelain Manufacturers, 424 Oceanic Bldg., San Francisco.

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"Amiwud" and "Pabco," manufactured by The Paraffine Companies, Inc., San Francisco, Los Angeles, Portland and Seattle.
"Campo-Board," White Brothers, distributors, 5th and Brannan Streets, San Francisco.
Western Asbestos Magnesia Company, 25 South Park, San Francisco.

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Nason's Opaque Flat Finish, manufactured by R. N. Nason & Co., San Francisco, Portland and Los Angeles.

WALL PAPER AND DRAPERIES
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W. & J. Sloane, 216-228 Sutter St., San Francisco.
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James G. Wilson Corporation, 11 East 36th St., New York and Los Angeles.

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WHEELBARROWS—STEEL
Western Iron Works, Beale and Main Sts., San Francisco.

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"Gold Seal," manufactured and sold by Bass-Hueter Paint Co. All principal Coast cities.
"Silkenwhite," made by W. P. Fuller & Co., San Francisco.
"Satinette," Standard Varnish Works, 55 Stevenson St., San Francisco.
The Paraffine Companies, Inc., 34 First St., San Francisco, Los Angeles, Portland and Seattle.
Murphy's Muronic Enamel and Murphy's Enamel Undercoating, Uhl Bros., San Francisco, Seattle, Portland, Oakland, Los Angeles.

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D. N. & E. Walter, 562 Mission street, San Francisco.

WINDOW SASH CHAIN
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J. G. Wilson Corporation, 621 N. Broadway, Los Angeles; Waterhouse-Wilcox Co., Underwood Bldg., San Francisco.

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Electric Appliance Company, 809 Mission St., San Francisco.
"Lowell" Rubber Covered Wire sold by Myers & Schwartz, 90 New Montgomery St., San Francisco.

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SEE OUR CATALOGUE IN SWEET'S

See page 481, 17th edition

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IT is subject to wear and tear, exactly as desks, tables, and other articles of school furniture. But it is part aiso of the decorative scheme of room interiors, to be treated with walls and ceilings as a decorative whole. An ideal floor must therefore combine in itself the qualities of *durability* and *beauty*. For these reasons the tried and tested school room floor is OAK.

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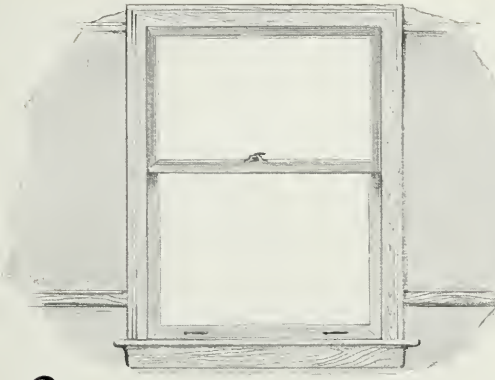

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FOR years, windows have been provided in banks and office buildings as a necessary source of light, but little has been done to increase their utility to the maximum. Rather, they have been turned over to the owner "unfinished."

Recently this custom has changed, due to the scientific study of lighting by the architect and the advent of a modern window equipment—WESTERN VENETIAN BLINDS—to increase the usefulness of window area.

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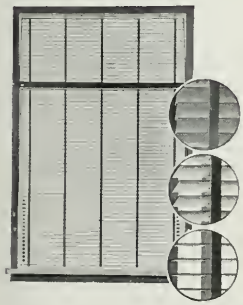

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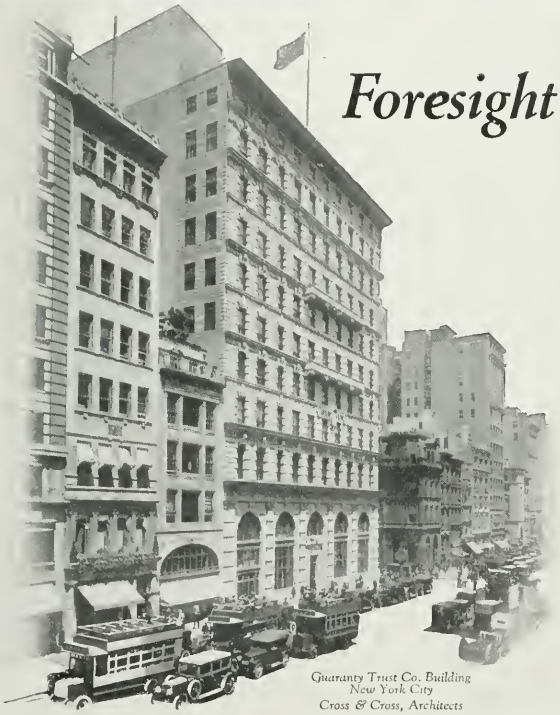

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New York City
Cross & Cross, Architects

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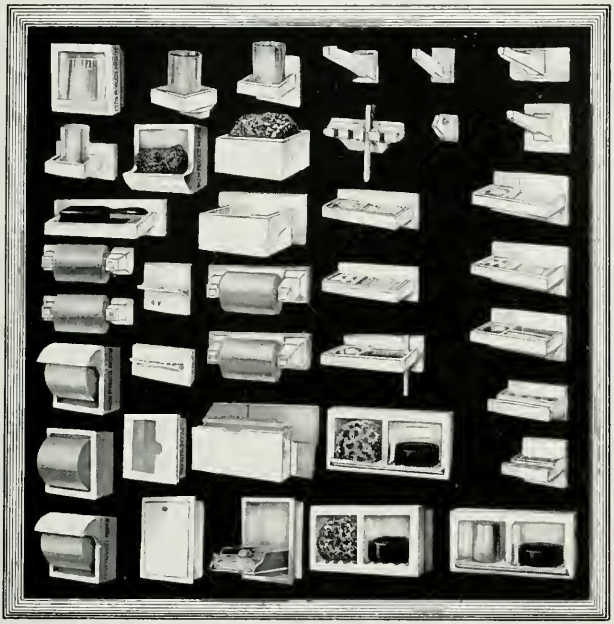

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They are installed by tile contractors, and should be included in the tile contract. We do not sell the plumbing trade.

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Look for this BATHROOM Fairfacts FIXTURES Trade-Mark

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BUILT IN YOUR BATHROOM WALLS

Wilson's Hygienic Wardrobes with disappearing doors in S. Paul's School, Providence, R. I., A. J. Murphy, Arch. Note ventilating grilles in door

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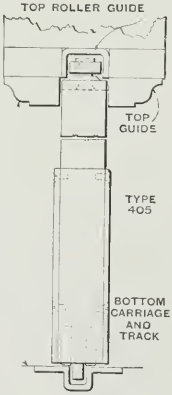

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Arrange the partitions as you may desire and we can furnish the hangers to operate them.

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are Metprodco Reversible Steel Sash designed to admit the maximum of light and ventilation, and allow cleaning from the inside with perfect safety. They can also be furnished with label of Underwriters Laboratories, Inc.

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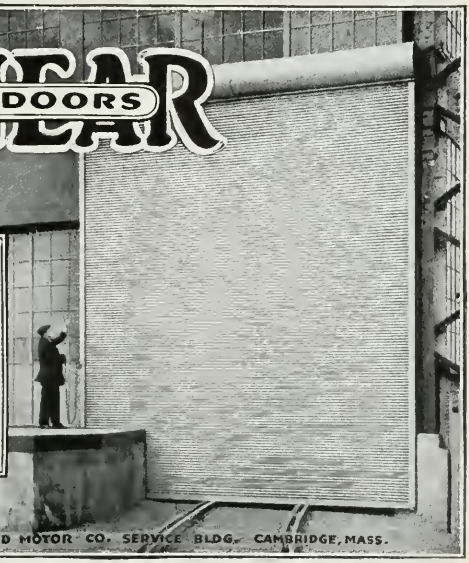

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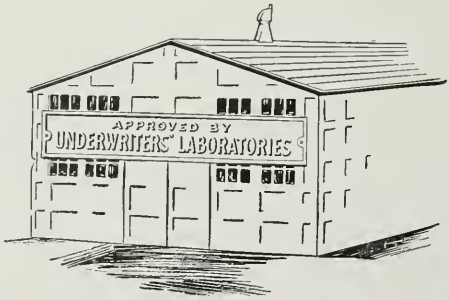

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Makes 100 per cent Salvage

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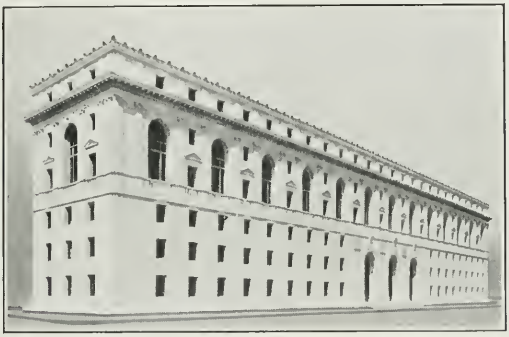

THE CALIFORNIA STATE BUILDING Bliss & Faville, Architects

ALL diamonds are not alike. Some are pure blue white, others are "yellow"; some are perfectly cut, others are decidedly out of balance; some sparkle with fire, others are "dead"; some are flawless, others contain bits of carbon.

The excellence of a diamond is determined by the excellence of each factor—brilliancy, color, shape, cutting.

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This TRADE MARK means much to the conscientious Architect and Builder

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Holbrook, Merrill & Stetson

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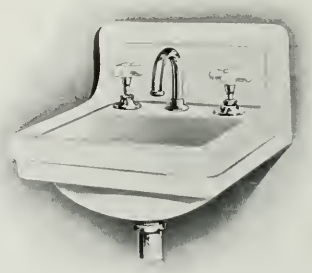

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-the Varnish you specify

for the floors in your client's home will be subjected to the most severe tests.

It must stand scuffing from the kiddies' shoes when they play indoors.

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The failure to perform any of these duties means stained and discolored floors that have to be refinished at considerable cost and annoyance.

Specify Hueter's Floor Varnish for all coats on the finishing of floors and you will protect your clients with a varnish that *stands every test.*

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It is NON-CLOGGING

It functions perfectly with any make or kind of bowl. Gives perfect cleansing flush – washes bowl clean.

Model A—Indirect Flush: For residences served by one-half inch supply pipe.

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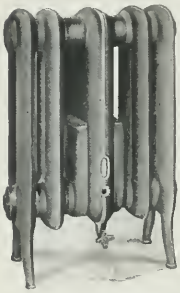

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For The Home—New or Old

Easiest and Cheapest to Install
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FOR ROOFS — TANKS — STACKS
CORNICE—PIPE—BRIDGES—PILING

Specified for New Stockton Roundhouse, Western Pacific Ry. Co.

Contains No Tar / No Asphaltum

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THIS Modern Apartment House in San Francisco designed by Architect E. E. Young, is equipped with the Hauser Type Fixture.

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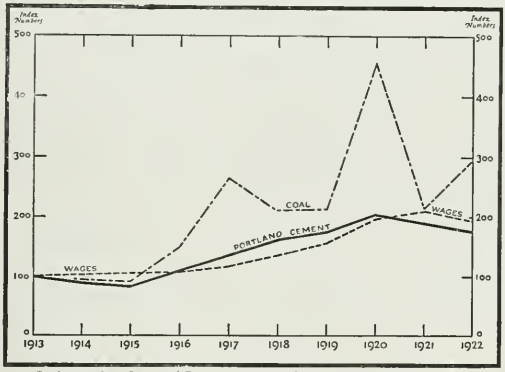

Coal prices from Survey of Current Business, February, 1923.
Cement prices from U. S Geological Survey.
Wages, from November (1922) Monthly Labor Review, Bureau of Labor Statistics.

More for Your Money

By measuring things against each other as our grandmothers did when they swapped eggs for calico, we get the clearest idea of values.

Coal and wages make up more than half the manufacturing cost of cement.

The chart above shows price fluctuations for portland cement, coal and wages during the past ten years. In each case 100 is used to represent 1913 figures, by the Government departments which compiled these statistics.

Translated into "eggs and calico" language this chart shows that a ton of coal would buy nearly twice as much cement in 1922 as in 1913. A day's wages also would buy more cement in 1922 than in 1913.

This means that even though coal and wages make up more than half its manufacturing cost, cement is now relatively lower in price than either coal or wages.

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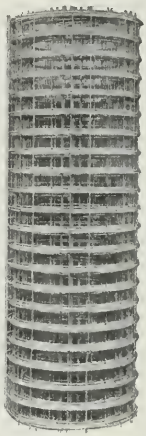

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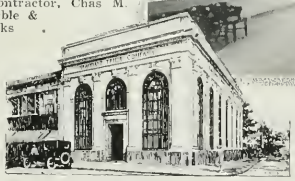

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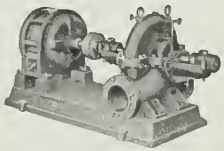

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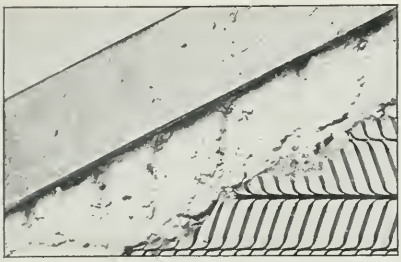

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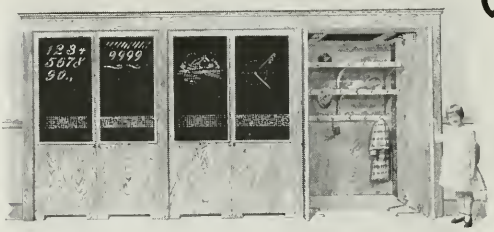

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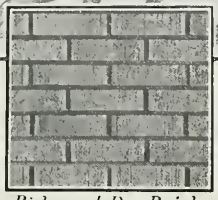

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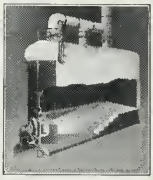
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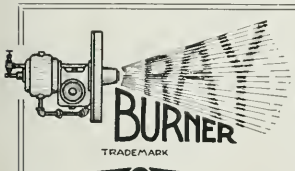

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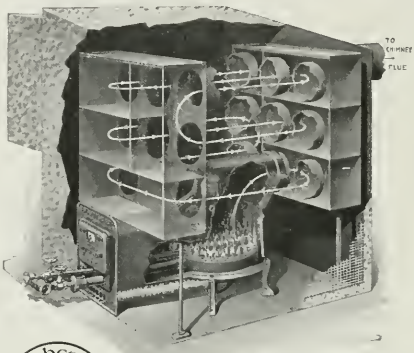

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JUNE
1923

VOL LXXIII.
No. 3

Some Recent Work of Carl Werner, Architect

By FREDERICK W. JONES

A selection of some of the recent work of Carl Werner, architect of San Francisco, shows a careful and intelligent adaptation of accepted principles. The majority of these buildings are of classical derivation, while others show a leaning toward early Spanish and Italian Renaissance, and also Colonial. The Masonic Order has chosen Mr. Werner to design many of its new buildings in California, and those that are finished reflect credit upon the architect. The proposed Scottish Rite temple for Santa Barbara has been planned in a spirit very nicely suited to the Santa Barbara tradition and Spanish feeling in architecture. The loggia is especially well proportioned and fine in scale.

The plans for the Fresno temple are interesting because they possess a degree of freedom taken from a style that is appropriate for a small town building, being less formal and somewhat less pretentious than the stately structures of this order found in the larger cities.

The Stockton temple was only recently completed at a cost of $360,000. The Spanish Renaissance was chosen for this building for two reasons—its appropriateness to the sunny California climate and its distinctive deviation from the other Masonic Temples being designed by the same architect for Bakersfield, San Jose, Oakland and San Francisco. In seeking a motif, Mr. Werner chose the portal from the facade of the University of Salamanca, undoubtedly one of the most brilliant examples of the Plateresque art in Spain. The richness of this portal

contributes to the simplicity of the upper stories of the building, which are topped with an elaborate cornice suggested by the corbels in the Patio of the Casa de la Salina, Salamanca.

The Commandery hall or auditorium of the Stockton temple shows considerable freedom from a definite precedent. The hall is designed in Tudor Gothic, the motif being obtained from the architecture of the early English Templar Consistories. The plaster decoration is in soft polychrome shades of red, green, blue and buff. The carpet and seat coverings are mulberry. The proscenium arch and organ loft screen are beautiful examples of the early English pierced tracery stone work.

The two blue lodge rooms are designed in Italian Renaissance, re-

MASONIC TEMPLE, SANTA BARBARA, CALIFORNIA
Carl Werner, Architect

finement and dignity being the keynote sought in these rooms. The arches back of the Master's station are decorated in stencil. The same soft reds, greens and gold used here are repeated in the ceiling beams and organ loft balconies. The light from the amber cathedral glass windows tends to soften and blend the colors, with the result that one entering the room is impressed with the atmosphere of quiet and restfulness.

The large niche over the central arch, surmounted by a canopy, is to receive a marble statue of King Solomon, which is to be the gift of one of Stockton's influential Masonic citizens.

It is interesting to note that in all of Mr. Werner's work there is a distinct individuality and an apparent effort to avoid repetition in the

design of his different buildings. Mr. Werner has successfully combined beauty with utility, both in his Masonic Temple plans and his ecclesiastical work. Much thought has been given the planning of the Masonic buildings, so that each department might be served to the best advantage. One of the latest problems to be met in planning this type of building has been to provide proper accommodations for the different branches of the order, including the Eastern Star and the De Molays, each to have ready access from their own rooms to a common lodge hall and entrance. The auditoriums are planned along lines similar to a Greek theater, with tiered seats in place of the old movable opera chairs on a level floor. The larger buildings are supplied not only with an

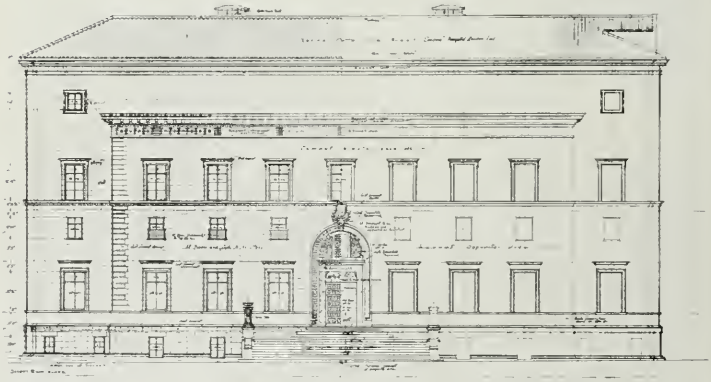
SCOTTISH RITE TEMPLE, SAN JOSE, CALIFORNIA
Carl Werner, Architect

amphitheater for lodge and entertainment purposes, but with one or more social and dancing halls.

The Masonic Club of the University of California, now under construction in Berkeley, possesses a Colonial feeling and domestic atmosphere that are very appropriate in a building of this type. In the South San Francisco City Hall the Colonial feeling is also in evidence. Splendid taste has been shown here in the combination of stone and brick for the exterior.

In Mr. Werner's church work there is evidence of much thought and endeavor to conform with well recognized standards in the classic —a style that has been adopted quite generally by the Science church for all of its new edifices.

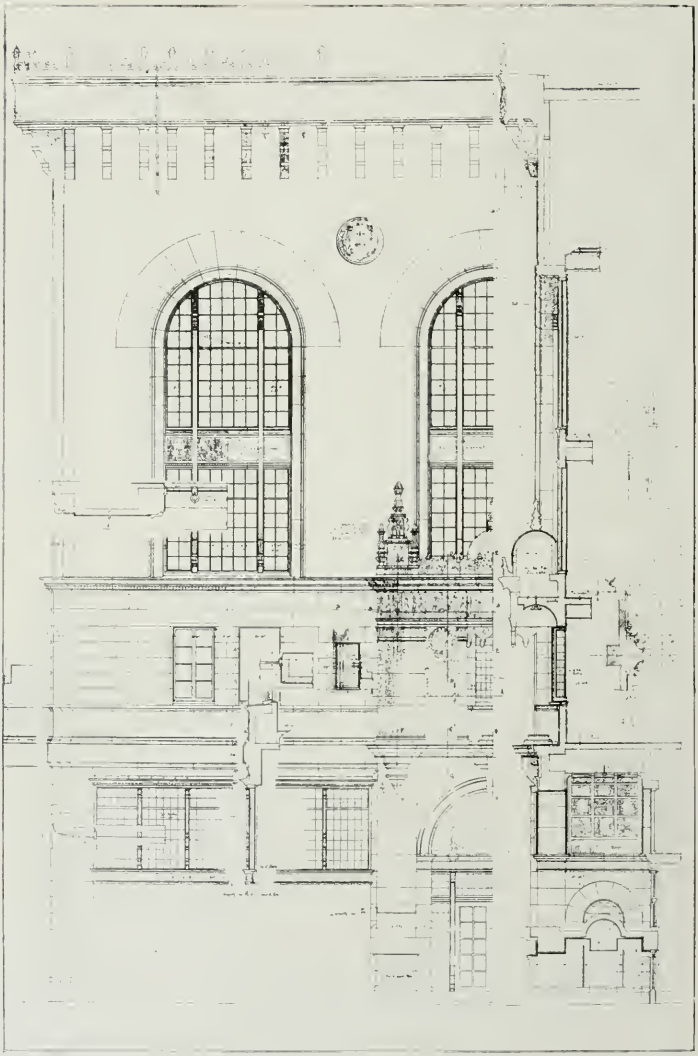
SCOTTISH RITE TEMPLE, FRESNO, CALIFORNIA
Carl Werner, Architect



ELEVATION, MASONIC TEMPLE, BAKERSFIELD, CALIFORNIA
Carl Werner, Architect

MASONIC CLUB, UNIVERSITY OF CALIFORNIA, BERKELEY
Carl Werner, Architect

MASONIC TEMPLE, STOCKTON, CALIFORNIA
Carl Werner, Architect



SCALE DRAWING OF FACADE, MASONIC TEMPLE
STOCKTON, CAL. CARL WERNER, ARCHITECT

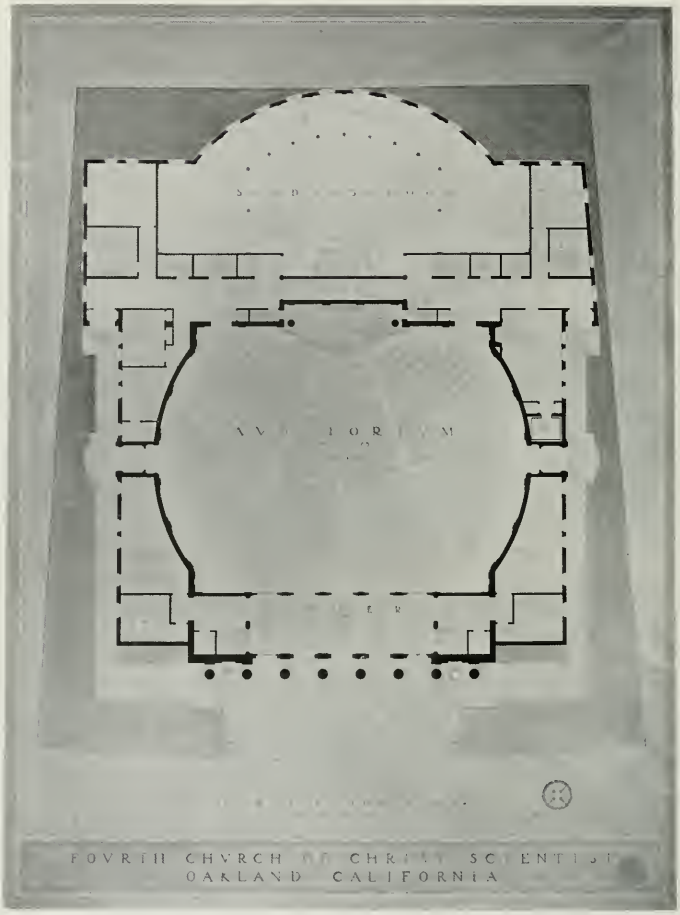
DETAIL OF ENTRANCE, MASONIC TEMPLE, STOCKTON, CAL.
CARL WERNER ARCHITECT

LODGE ROOM, MASONIC TEMPLE, STOCKTON
Carl Weiner, Architect

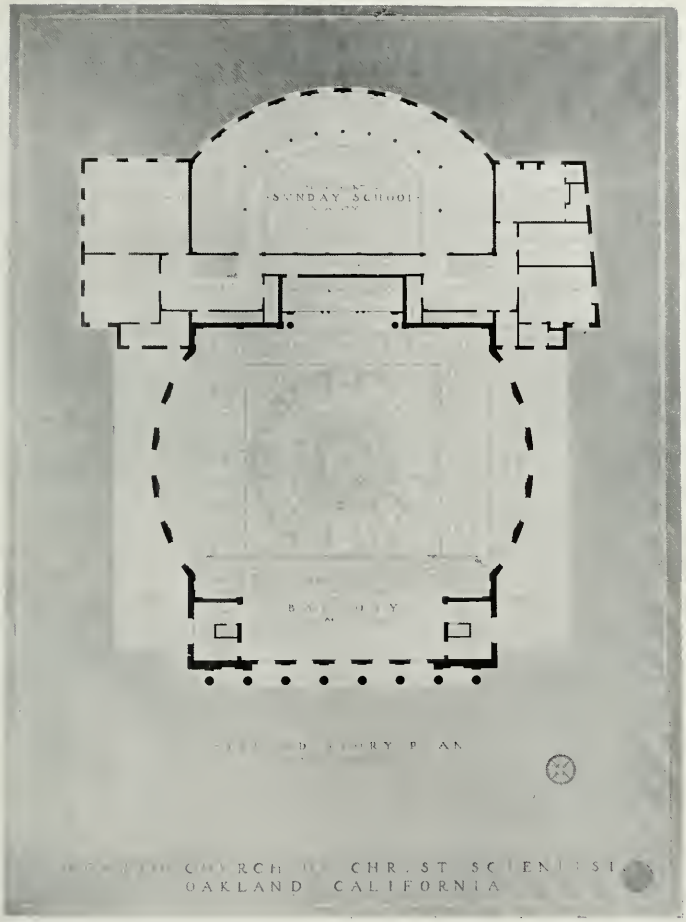
FIRST CHURCH OF CHRIST SCIENTIST, ALAMEDA
Carl Werner, Architect

FOURTH CHURCH OF CHRIST SCIENTIST, OAKLAND
Carl Werner, Architect

SECTION, FOURTH CHURCH OF CHRIST SCIENTIST, OAKLAND
Carl Werner, Architect



PLAN, FOURTH CHURCH OF CHRIST SCIENTIST
OAKLAND, CAL. CARL WERNER, ARCHITECT



PLAN, FOURTH CHURCH OF CHRIST SCIENTIST
OAKLAND, CAL. CARL WERNER, ARCHITECT

FOURTH CHURCH OF CHRIST SCIENTIST, SAN FRANCISCO
Carl Werner, Architect

FIFTH CHURCH OF CHRIST SCIENTIST, SAN FRANCISCO
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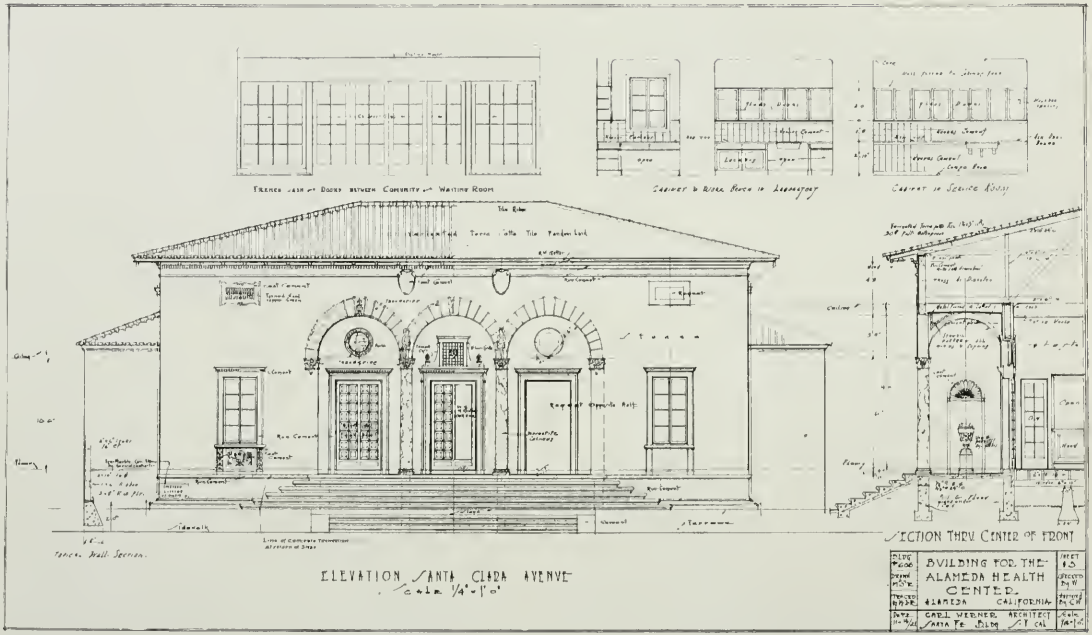


BUILDING FOR ALAMEDA HEALTH CENTER, ALAMEDA
CARL WERNER ARCHITECT

ARCHITECTURAL COMPOSITION, PROPOSED CIVIC CENTER, LOS ANGELES
By Franz Herding
View from Axis of Spring at First street, based on layout by Cook and Hall

The Los Angeles Civic Center

ON June 5th, the people of Los Angeles approved bonds for the proposed new City Hall and thus have opened the way to approach intelligently the much discussed Civic Center problem for that city.

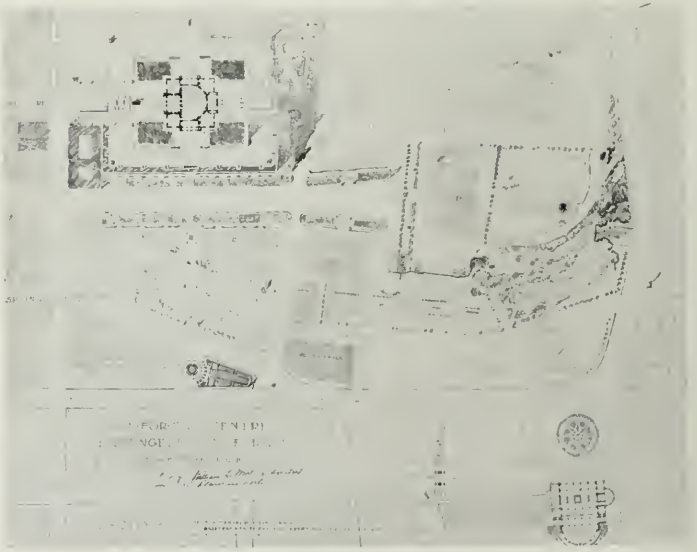
The proposed location seems logical, although the city is still lacking a city plan to direct organically its unprecedented growth.

As long ago as two years, Mr. William Lee Wollett lead the way for a city-crown, as his spirited sketch on the next page shows. He has subordinated mere architectural style to the greater demand of the problem, to Civic Art. Instead of destroying nature he has enhanced it and has built it up to a monumental scheme.

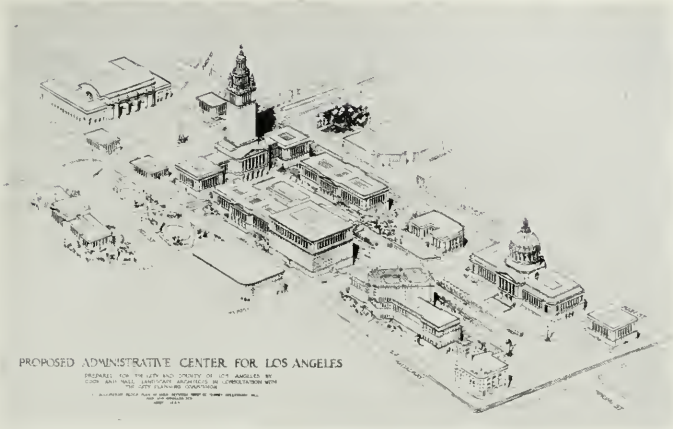
The landscape architects, Messrs. Cook and Hall, who were commissioned to design a Civic Center in the same section of the city, have treated the problem from a more or less standardized angle as the layout and bird's-eye view on page 67 indicates. Under their plan, with the hill considerably leveled off- imposing terracing possibilities were lost while the already planned Hall of Justice as part of the scheme, dominated the architecture. The above sketch shows the only impressive view possible under those and other limitations set by the Cook and Hall plan. It is from the axis of Spring at First streets, looking north and was drawn and composed for the Allied Architects by Mr. Franz Herding.

There is no doubt but these different-sided advance studies have been of great assistance to clarify to the public and city officials, their Civic Center problem, and it can be hoped that the next steps will lead to an impressive organically and esthetically perfect Civic Center.

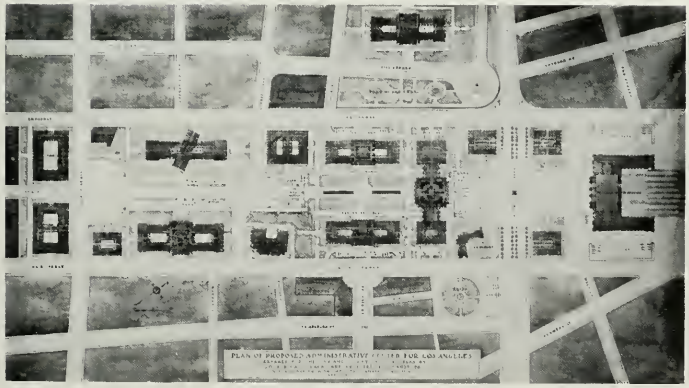
SKETCH, LOS ANGELES CIVIC CENTER
Suggested by William L. Woollett, Architect



PLAN FOR CIVIC CENTER, LOS ANGELES
Suggested by William L. Woollett, Architect



PROPOSED CIVIC CENTER, LOS ANGELES
Cook and Hall, Landscape Architects



PLAN, PROPOSED CIVIC CENTER, LOS ANGELES
Cook and Hall, Landscape Architects

HOUSE OF MR. J. J. TYNAN, SAN FRANCISCO
LOUIS M. UPTON ARCHITECT

Land Settlements

A New Field for the Architect

By FRANZ HERDING, City Planning Architect

RECENTLY Berkeley had a land settlement conference, which lasted a week. The conference was especially conspicuous on account of the absence of architects and other professionals whose work it is to plan settlements, farm communities, farm-cities and towns.

The sessions were well attended by engineers, soil and irrigation experts, bankers, business men, realtors and farmers—men well trained and equipped by experience to tell and show HOW to do almost anything in the line of rural development. Therefore, quite naturally, details concerning soil tests, irrigation, crop production, financing, etc., were widely and splendidly discussed. But the greatest problem in land settlements was hardly touched. This is the problem of actually telling WHAT to do in the way of planning the settlement; of organizing the many details and branches into an orderly, unified whole that offers healthful, attractive, intelligent and happy living to this rural population. The visualized planning of the settlement was disregarded at the conference and so was the architect, who with his trained vision should be the planner of such projects, or in the years to come the rural settlements may find themselves in a similar or worse condition than the haphazardly planless grown cities of today. Unattractive and soulless as well as wasteful as they are.

Without minimizing the tremendously important engineer — and specialist's services necessary to build a settlement, one must admit that the greatest responsibility for the success of such a project is up to the planner. He must possess vision and ideals and work with understanding and sympathy with the innumerable individual things that should make up the modern settlement. He must organize with wide scope and honesty, subordinate the little to the big, and be a master of the whole. His work is fascinating because it is creative. He cannot reproduce from the past, although he may search there for inspiration.

The modern land settlement is practically a new problem if it is to be made perfect. The desertion of the land and "main street" towns today clearly shows that rural life needs extensive improvements. Therefore it might be well to outline briefly here some of the principles upon which a settlement plan should be based.

Preceding the plan, a series of studies and tests must be made by specialists as to soil, irrigation, drainage, topography, traffic—and shipping possibilities, as well as health. There also should be tests as to clay locations, etc., for cheaper building supply, forest reservations, possibly drills for oil or coal. They all form the basis for the general plan and will direct the density of population and the agricultural possibilities. They are also the basis of the street plan or traffic system, which forms the fundamental structure of the settlement. It should be guided by the topography and by logic. It should and in most instances can disregard quadrangle divisions, because this rural dividing system has proved impractical and expensive in construction and use. While on the other hand a well-defined street system, a carefully studied territorial division, correctly calculated and constructed streets can save big sums. The generally accepted idea, that every street in time may become an important thoroughfare, is wrong, and will only result in that wasteful, unimaginative checker-board pattern of subdivision where hills have to be leveled off and valleys filled up for mere standardization.

It must be the task of the settlement planner to lead traffic into certain directions defined by local conditions. Then all the many streets which never will have through traffic can be treated proportionately cheap, while the few main traffic arteries should have the best the particular settlement can afford.

Highway and railroad intersections will principally locate the towns or farm cities, community centers, etc., which offer such wonderful many-sided planning possibilities, just as do the individual farmsteads, shipping centers, the creameries, canneries, the sport fields, the nurseries, experimenting farms, and so on. The individual house and farm is only a fraction of the settlement, which consists of a variety of houses, plazas, streets, walks, railroads, canals, parks, fields, lakes, forests, and so on. It is the problem to bring all these into a harmonious relationship so tuned to the psychology of the settlers that their life will be a happy one.

No doubt many novel planning schemes will have to be introduced into the community settlement projects occasioned by the demands of the machine age. However, we should not disdain to study the ways of some of the old countries where ideal farm communities have existed for centuries, especially Italy and China, or in Letchworth, England, and other modern settlement experiences, especially in Germany.

At the conference the fact was brought out that there are about two million acres of fertile land in California easy to irrigate and inexpensive to develop agriculturally. If properly improved, this land would offer a comfortable living to a hundred thousand families or more. California State, private associations and individuals are about to embark on this tremendous project, and the best of business technic and science is ready for action, but planners for big organized schemes are lacking.

* * *

How the Architect Produces His Effects*

By DR. WARREN P. LAIRD

Dean School of Fine Arts, University of Pennsylvania

THE architect does not produce his effects through wastefulness, through excess, through prodigality or improvidence. He is aiming to produce something that will satisfy not alone scientific judgment, that will not simply bear strains and endure the asperities of time and weather, but he is trying to satisfy something that lies beyond that scientific judgment and that exists in the mind and heart of man—a love of the beautiful. He is trying to give something to the observer which will satisfy the intelligence in the first place and which will go beyond that and satisfy the craving for beauty.

Among the few things that we architects believe and teach is this proposition: that beauty is not to be had at mere money cost; that it is not always, and perhaps not often, necessary to go beyond the economic requirements of a building to make it beautiful. On the contrary, making a building beautiful is a question of good taste and good judgment in the employment of material; shown in the selection of materials that will harmonize in color; that have good texture and will please the eye by their surface character and by the selection of ornament that will be appropriate and well placed.

Under the severities of his training, the architect comes to learn that the process of making a thing beautiful is the process of simplifying it. I wish I could show you the process through which the student passes, in which we harrow his soul by requiring him to leave things

* An address before the Engineers' Club, Philadelphia.

out, whereas his instinct is to put things in to make his building beautiful. Ordinarily the simplest things are the most beautiful.

Sometimes there is a deliberative effort to make a thing sumptuous and rich and gay, but that is an essay in a certain kind of design. The result may not be satisfactory because it is a great deal more difficult to make a very extravagant thing beautiful than to give that quality to a simple thing.

The architect's great concern, then, in his work is design, or composition; that is to say, the arrangement of the parts into a whole. In designing his plan, he has in mind not merely the distribution of spaces into a convenient arrangement, or the nature of the structure which is to support the roofs and to separate those spaces, but also of something that he must carry along at the same time; he has in mind always the producing of something which will develop into a form of beauty.

It is one of the commonplaces in architecture, in the judgment of designs in architectural competitions—I think that is not commonly realized—that the jury will attach greater weight to plan than to elevation; and if there is a slight difference in merit between two plans, it would take an extraordinary badness in the elevation of the better of those designs, and an extraordinary beauty in the elevation of the second best design to give that second best plan the first place in the competition.

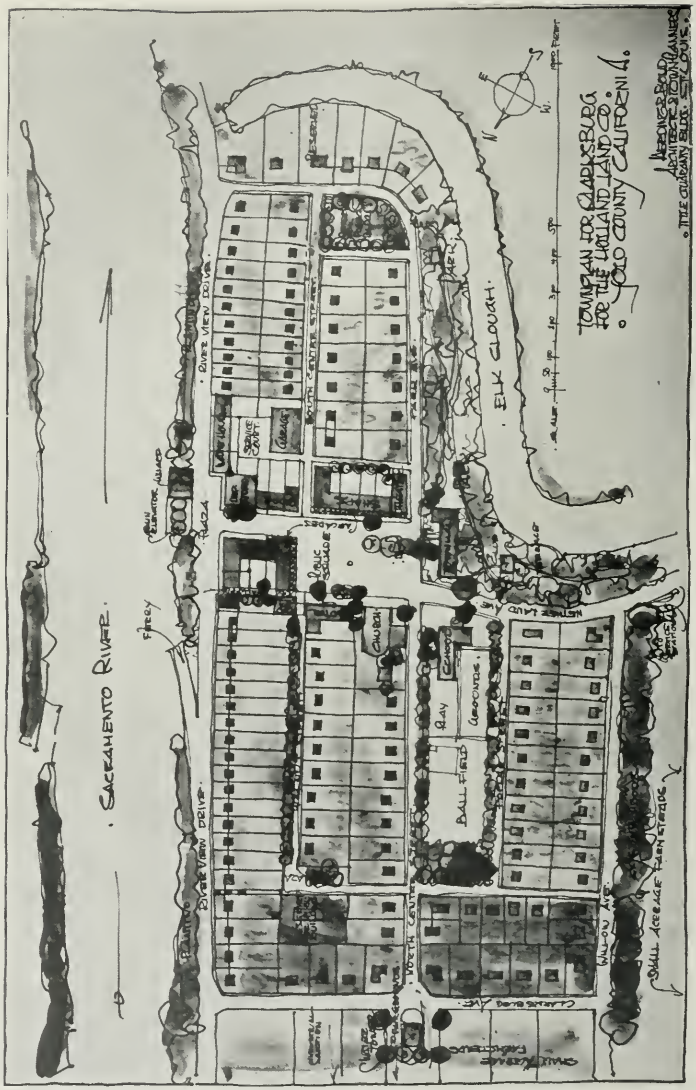
The best architectural jury will look first at the plan, to see whether the utility that will meet the purpose, and whether it is going to be economical in its construction or not. They feel a security in doing that because of the fact that a good plan will produce a good elevation in competent hands. Hence the architect's major responsibility and the thing that occupies most of his time and study is the problem of providing something practical, something that will satisfy economic requirements, and he can best produce a work of beauty out of those conditions.

* * *

Standard Dimensions for Face Brick

At a preliminary meeting at the Department of Commerce between a committee of the American Face Brick Association and Mr. J. W. Ginder, Chairman Specifications Committee of the Supervising Architect's Office, Treasury Department; Mr. A. L. Harris, American Institute of Architects, Washington, D. C.; Mr. Paul E. Holden, U. S. Chamber of Commerce; and Mr. R. M. Hudson, of the Division of Simplified Practice, it was resolved that the Department of Commerce be asked to call a general conference consisting of representatives of face and common brick manufacturers, architects, contractors, builders, and Federal representatives some time during the current month, to consider the adoption of the following standard dimensions for face brick: Rough face brick "approximately 8 in. x 2¼ in. x 3¾ in.," smooth face brick "approximately 8 in. x 2¼ in. x 3⅞ in."

Mr. R. M. Hudson, Acting Chief of the Division of Simplified Practice, who conducted the meeting for the Department of Commerce, said that a partial survey recently made by the American Face Brick Association, showed that 167 plants throughout the United States manufactured 39 different sizes of rough brick during 1922, and that 141 plants manufactured smooth brick in 36 varieties. If the committee's recommendation is adopted at the coming conference, but two sizes of brick will be made, thus eliminating at least 38 rough and 35 smooth brick varieties. Mr. Hudson estimated that from 80 to 90 per cent of the brick made in the United States is of the average dimensions covered in the recommendation.



GENERAL PLAN FOR CLARKSBURG, CALIFORNIA
FRANZ HERDING CITY PLANNING ARCHITECT

Partial Report on Planning a Farm City

By FRANZ HERDING, City Planning Architect

THE town of Clarksburg, visualized and outlined in this report, is to be the center of a large model farm district. The site is located in Yolo County, California. The Sacramento River flows on the one side, while the richest of river bottom lands extends for many miles on the other side. The area of this land is almost fifty thousand acres, and is now fast being developed into moderate-sized farms and orchards. It will in time have a large and prosperous rural population.

Therefore, it is the duty of Clarksburg to develop and grow into a model town. It should offer every convenience and attraction; it must furnish the best business and educational facilities, and has to serve the physical as well as the spiritual needs of such an extended community. It must offer advantages seldom, if ever, found in the "happy-go-lucky" grown country town.

Fortunately Clarksburg can grow today to a preconceived plan without going through the expensive process of replanning and reconstruction. The new plan does not need to be just a remedy for the ills of the town nor does it have to organize a series of haphazardly built up blocks into a town-like structure. Clarksburg can be planned ideally from the start, because there are no permanent buildings, no streets or sewers or other physical obstacles that have to be taken care of and have to be fitted into the general plan. The few townsite improvements that have been carried out up to this time work well into the present scheme and in no way conflict with the laying out of the town to the best advantage.

The Town Plan

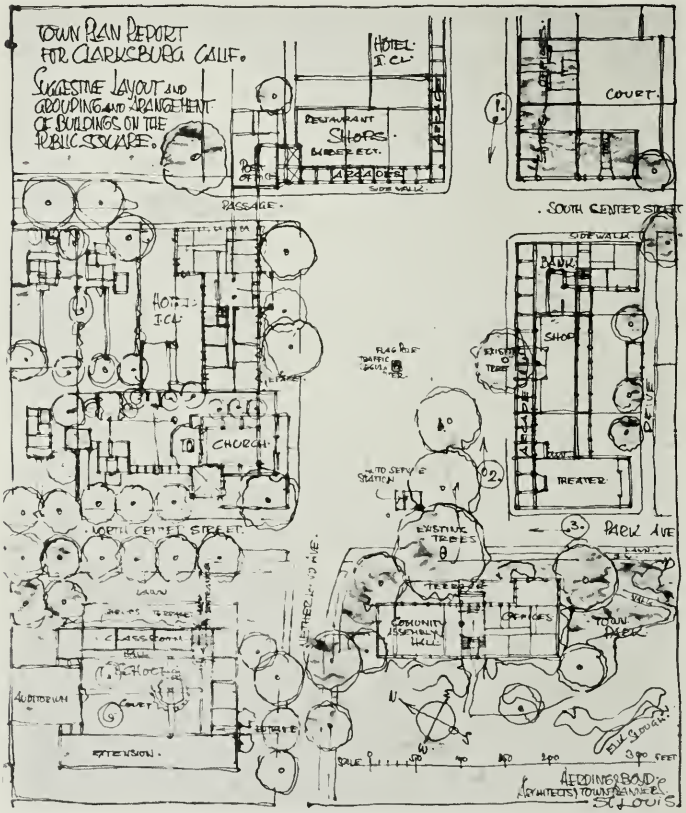
The town has been laid out as an independent organism. The roads leading into the town center are made as straight and direct as possible to facilitate the present and future automobile traffic. Large parking spaces are provided, and sharp intersections of the main traffic arteries avoided. The main approaches will be the Riverview Drive coming into the plaza from the North and South, and the Netherland Avenue centering from the Southwest. North Center street will gain in importance later when the small acreage tracts to the West and North of the town are developed.

These highways, as well as some minor streets serving the immediate town only, enter into the public square. This square, about 300 by 400 feet, offers the best traffic facilities and quite an automobile parking space. Most of the important buildings and shops of the town are located here. The sidewalks on all sides are spacious. Arcades are proposed fronting the shops, which form a protective and attractive feature. In the grouping of the buildings the dominant idea was to create pleasing and impressive pictures and also to emphasize the importance of certain individual structures. The town hall, for instance, is set on one side of the square on the levee, thus occupying an important position, as it should.

The Elk Slough levee, not offering any advantages for building sites, is proposed to be developed into the town park, and as such it will serve its purpose ideally. The growth of shrubbery here is already good, and the vistas obtained from this elevation are extremely interesting. The approaches from any section of the town are convenient and inviting. One or two sites for small club houses might be reserved in the park, if certain restrictions are complied with. Along Willow avenue exist

attractive groups of trees which practically extend the park to the Northwest along the western boundary of the town. The above, with the planting along the Sacramento River and the levee, will form a natural park nearly surrounding the town.

Certain advantageously located building sites are indicated as reserved. They should be for public buildings, viz.: School, hospital, church, etc., that might be needed during the growth of Clarksburg.

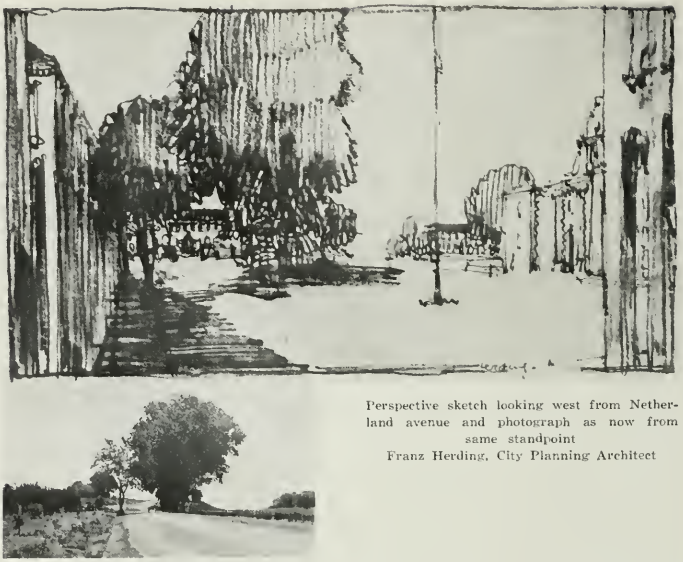


LAYOUT OF PUBLIC SQUARE, CLARKSBURG
Franz Herding, City Planning Architect

The home lots average about 75 feet x 150 feet, a size sufficiently large for a detached house with garage and space enough for the growing of vegetables, berries and fruit trees necessary to supply the wants of the average family. For larger tracts, one acre or more, an area should be provided outside the immediate town plan where indicated.

The population of Clarksburg as planned will be about one thousand

PUBLIC SQUARE ELEVATIONS AND STREET SECTIONS, CLARKSBURG
FRANZ HERDING CITY PLANNING ARCHITECT



Perspective sketch looking west from Netherland avenue and photograph as now from same standpoint
Franz Herding, City Planning Architect

people. It will consist mainly of people directly connected with the business of the town. Here will live farmers from the neighborhood that prefer to drive to their fields and return from the day's work to the social comforts of the town, also teachers, mechanics and farm labor. The town should attract anyone desirous of living in an ideal rural community.

Town Square

This layout shows on a larger scale the proposed grouping of building around the public square, and demonstrates the practicability of the building masses on the town plan shown on another page.

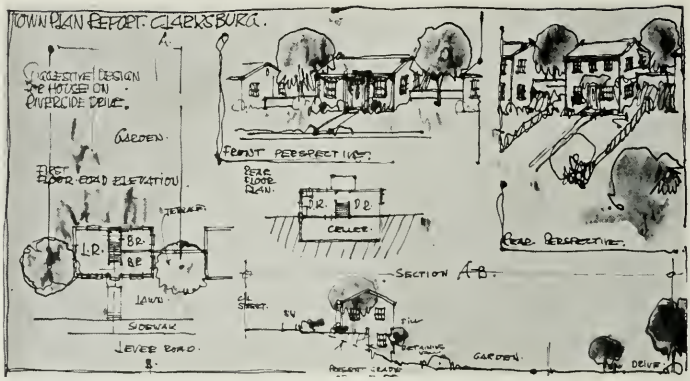
The modern city should be without light courts. Every view of a building just as well as a view from a building should be open and attractive. Every building should be so designed to emphasize its advantage without detracting from the effectiveness of the adjoining building. A study of the town square layout and the sections and elevations on the next page indicates that our solution complies with this established law of city planning.

The perspective sketches show architectural effects of the future town center from the same locations where the accompanying photographs were taken. The sketches are conceived from the town square layout on other page and to show the possibilities of creating impressive views by artistically combining existing natural features with architecture and sound city planning into one harmonious scheme. They also truly indicate that the "City Beautiful" is not a series of just beautiful houses, but that it is a natural, logical solution of a utilitarian problem, in which houses, blocks, streets, landscape treatment are subordinates

Perspective sketches and photographs from points two and three on layout on page 74
Franz Herding, City Planning Architect

for the good of the entire town, not for beauty's sake alone but mainly for utility and proper physical organization of the community.

The designs of the homes as presented are not supposed to be standard or used as types for any location in Clarksburg. They only suggest a style of architecture harmonizing with the town square buildings in the California spirit. In every case each of the plans has been designed with a particular lot in mind. The location as to orientation and the street determined the layout of the floor plan and guided the

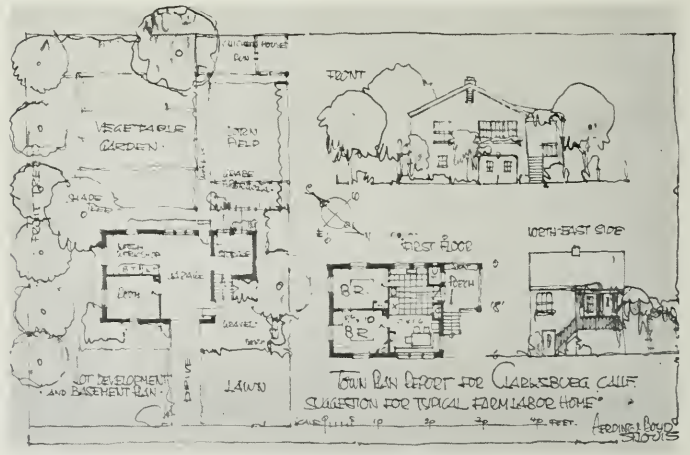


COTTAGE PROPOSED FOR RIVER LEVEE, CLARKSBURG
Franz Herding, City Planning Architect

arrangement of the various rooms, porches, out houses, etc. These types are supposed to assist the architect in designing each house and lot as a unit of a harmonious town scheme.

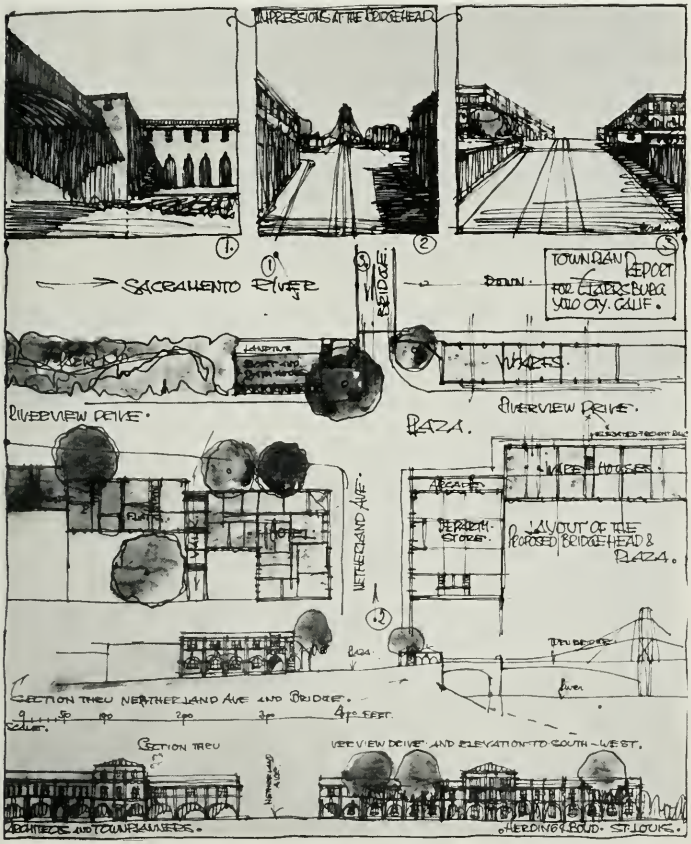
Of great importance is contented farm labor. The greater number still have to be drawn from the undesirable floating element. This class of workers together with the continuous labor turnover is enormously expensive, and it is a momentous problem to be solved.

Generally the best solution is providing good and practical housing based on a renting proposition, and the houses preferably built of a permanent construction. Quite often the mistake is made of building



LABOR COTTAGE, CLARKSBURG
Franz Herding, Architect

some replica of a city residence, miniature and of flimsy construction, of course, to keep the cost down. We suggest a house of the type shown above. Simple in construction, frank in layout, convenient and economical in furnishings. Most of the house should have the first floor about six feet above the ground on account of the low elevation. The ground floor will be fully utilized as shown. On the main floor we suggest one big room as the principal feature of the house. This room is ventilated on three sides, or on four, that is if the vent in the hood above the stove is included. This room should be completely finished, with the stove, water heater, sink, etc., furnished and installed; also included should be the cupboard, benches, table, etc. We also suggest to place in the lot outhouses, pergolas, planting and so on, to properly complete the scheme.



DEVELOPMENT AROUND FUTURE BRIDGEHEAD, CLARKSBURG
Franz Herding, City Planning Architect

INTERIOR, HOUSE OF MR. J. J. TYNAN, SAN FRANCISCO
Louis M. Upton, Architect

INTERIOR, HOUSE OF MR. J. J. TYNAN, SAN FRANCISCO
Louis M. Upton, Architect

Good Architecture Should Express the Spirit of the Community*

By CARL F. GOULD
President Washington State Chapter, A. I. A.

THE American Institute of Architects, composed, as it is, of local chapters distributed throughout the entire United States, has a cohesive strength and is of value to the various communities and to the country at large just to the extent that each individual is impelled by that apparently indefinable impulse to create in our physical necessities, orderliness and beauty. Just what is it that puts the spirit into the architect and keeps him at his work day by day when he knows from the beginning to the end of his profession that he cannot obtain what all the world seems most to desire—worldly increment. To an outsider who may happen to be present at one of our conventions such subjects as building ordinances, competition codes, employment of labor, schedule of charges, etc., would appear to be those which are uppermost in our minds. These subjects are always discussed with a fervor and intensity of feeling by cultured and intelligent men, while the very inner reasons for our existence are apparently ignored. This may be due to the fact that the intimate things of the spirit we never allow to appear in the foreground of our consciousness; it may be we cannot find words that adequately give our feelings expression. We hesitate, while the most obviously secondary things slip easily into words and inhibit an expression of our real feelings.

We cannot easily describe the fervor of feeling of bringing into being something that the world wants—whether it is a shelter for a family or a place in which to worship or a bridge for our traffic to cross upon—but there is a fundamental impulse which when expressed and we see its accomplishment gives a sense of satisfaction. When, however, to these creations we add an element of what is recognized as beauty, the pleasure of creation is greatly intensified. This ingredient of beauty, which is the very soul of our profession, we seldom or ever allow ourselves to consider. I remember so well some years ago at a convention held in Washington, D. C., an address by Lloyd Warren, who died recently, in which he said that the artist in the architect must be in command. I recall also an inspiring statement made at the close of our convention two years ago by Dr. Suzzallo, president of the University of Washington, that we, the architects, were the custodians of beauty, a thought which places an uplifting responsibility upon us and one which we should treasure. It must be just this desire of creation in terms of beauty that puts the spirit into our profession and makes it possible for us to endure its hardships and the frequent lack of public esteem.

I am going to try to analyze for a moment a few of the ingredients of which this term "beauty" in architecture is composed. I realize my utter incapacity for doing this, and beg you not to grow impatient. I shall limit myself to the discussion of a few of the inherent elements in a building which are not usually considered factors in determining its beauty, I shall not discuss proportion or the charm and quality of detail, which we so often think of as the only medium of expressing architectural beauty. These can be best illustrated by taking you for a moment upon a trip to a far country. The very wonder of the Egyptian pyramids draws us to them. We are lifted out of the monotony of our own life into the realm of the spirit of universal man in their presence. No

* Paper read before the Washington State Chapter, A. I. A.

people ever strove harder to divert more of their hard-earned economic wealth to make effective and give beauty of expression to their belief in the life of the soul than the Egyptians. In the presence of the sheer size of these pyramids an emotion is aroused just as were aroused the emotions of the Egyptians 5000 years ago. Realize for a moment that their mass laid down upon, for instance, the 40-story Smith Building, would completely encompass it and rise many feet beyond its height. It is by the very extent of the mass alone that we are impressed. The wonder which is engendered by this external mass may also be engendered by internal space, such as the interior of St. Peter's at Rome the Pennsylvania Station at New York, and to a less degree by the interior of the Forestry Building at the university. Sheer size is one of the means by which the architect can create an emotional appeal, and it must be taken into account as a factor or element of beauty. The Egyptians expressed the spirit of their race in terms of horizontality, the stability of line of their temples, of the unbroken silhouette against the sky, of the unpierced walls, of sturdy columns with their flat roofs and sombre interiors. Stability, endurance, finality, are the feelings we have in the presence of these big hypostyle halls. These were the architectural elements to which the Egyptians attached importance, and to them these were the essence of their life, and it is these appealing emotions of the ages which we travel many thousands of miles to obtain.

For a moment let us enter into the spirit of the mediaeval architectural expression, and we develop a series of entirely different emotions. The moment we set foot in the most marvelous of all buildings, a cathedral of the Gothic period, the eye does not travel horizontally as in Egypt, but follows up the attenuated clustered supports into the mysterious maze of pointed forms overhead. The whole seems not borne by earth, but something hung in the air. The weight of tradition is not upon us; a precedent plays no part. A vibrant atmosphere grips us. Imperfect in its incompleteness, maybe, but aspiring to infinity. Such is the emotional appeal that the great architects of the middle ages gave to the world a thousand years ago and to which we still respond.

The cool splendor of Greek architecture neither attempts to impress us by its sheer mass nor by its aspiring quality, but through the intellectual relationship of its parts and the exquisite refinement of all its elements, which can only be perceived and enjoyed by the highest type of mind; while beauty to the Roman was not primarily expressed in terms of refinement of parts, but by sumptuousness of detail and by a variety of forms, principally by the use of the arch and the vault.

These are all qualities which we usually do not consider as pertaining to beauty, but without which the monuments of the past could not have emotionalized the world down through the ages.

Until we can in our present forms of building attain to something which in its inherent mass expresses an intention which is a natural outcome of our present life and civilization, can we really hope to give to the world an architecture which will be of permanent beauty. At the present time we are so overlaid with a confusion of impressions and emotions that we have apparently no dominating one which gives a direction to our thought and from which the architect can obtain positive inspiration. On the one hand we find a structure like the Woolworth Building, piercing the air with a vibrant vertical effect, apparently satisfying all the elements which make for beauty, an inspiration which one would think would be followed. A new office building, how-

ever, is constructed in its vicinity, notably the new telephone building, the most costly office building in the world, made up of a series of superimposed Greek marble temples, having no apparent intention of and totally contradicting its magnificent neighbor.

We have our court houses, post offices and our libraries expressing calm horizontality; we have our institutions of learning, expressing verticality; our city streets are made up of contradicting elements, and beauty exists only in isolated buildings here and there, not in the coherent relationship of a building to its neighbor. An eminent Frenchman in a recent interview states that "it is disconcerting to turn from manifestations of American architectural genius to the unsightly streets nearby, in the building of which all consideration apart from the strictly utilitarian would seem to have been banished. Houses big and small, handsome and hideous, pretentious and insignificant, ornamental and sordid, huddled side by side in jarring promiscuity, mute testimony of the stern material necessities and the preoccupations of the past. One is tempted to liken New York architecturally (he continues) to a garden overgrown with gigantic weeds, cleared in parts to make room for fair, well-trimmed avenues. Yet on all sides I see such strong evidence of a swiftly developing national artistic temperament that I am convinced the present blemishes will in due course be swept away."

The selection of the type of architecture with which we express a building for our client is seldom if ever based on a deep conviction, rarely if ever does the client bring any intelligent reason to bear on why he wants one type of building rather than another; the only demand he makes is that it be entirely dissimilar to any building in the vicinity. How, then, is it possible for us to obtain beauty in the total effect of our buildings if we cannot agree on any singleness of purpose. Is it not true that in this Northwest corner of the United States, with Canada touching us on the north, here is a certain individuality apparent which might be translated and expressed in architectural terms? Are we not as a group quite different in feeling and sentiment from the people of California? Is not the habit of mind of our people different from that in the south? Are not the variations in our climatic conditions a partial cause for this difference? What little historic background we have is not the same. Do not our conditions more closely approximate those of Northern Europe, whereas California approximates the conditions of the Mediterranean basin? If this is true, the horizontality, the calmness, and the massive walls belong to California, while the vibrant verticality, the small extent of wall with large window area, are characteristic of us. Therefore, it seems to me that if our clients do not help to bring unity out of chaos, is it not our duty to attempt to do so by conscious agreement? However beautiful an individual building may be, if it does not conform to the conditions of the community in which it is placed it does not contain the fundamental elements of beauty. Even if the most beautiful building in the world, such as the Taj Mahal, were transported to the British Isles, it would be an exotic thing, just as an objet d'art would be in a museum case.

It seems to me that we architects should strive to discover or evolve or transport an architectural type which most nearly seems to fit our conditions and accept it as a basic point of departure, and each one of us as best we can evolve and apply such a type, until either we or those who come after us are able to wield it into a form which perfectly expresses our community, as did the temples of the Egyptians and the churches of France each express the spirit of their communities.

Illuminating Engineering in Relation to Architecture

By LAWRENCE M. TYE in the Surveyor, London

ILLUMINATING engineering during quite recent years has developed and become an applied science, enabling light to be dealt with as a definite quantity, predetermined with exactitude and no longer giving way to rule-of-thumb application.

The early use of petroleum was followed by the introduction of gas lighting and the electric arc round about the year 1809, but it was not until Swan and Edison's introduction of the electric glow-lamp in 1879, and Welsbach's discovery of incandescent mantles in 1883, that real progress began to be made.

The success of gas and electricity as illuminants, particularly with subsequent progress in their efficiency, has led to the enormous application of artificial lighting, and installations have been made indiscriminately, in many cases without any regard being paid to physiological requirements or its application to get the best effects.

In the first place, this advancement in the efficiency of illuminants has brought with it such high values of intrinsic brilliancy or surface brightness that it becomes positively dangerous, apart from discomfort from the point of view of vision, to employ modern light sources without due precaution being taken to suppress glare, quite apart from matters of light distribution.

As an example, with our early oil lamps the intrinsic brilliancy of the source was in the order of 3-8 candles per square inch. In the case of the modern gas-filled electric lamp this figure has reached as high a value as 2000 candles per square inch. This in contrast to the brightness of average white sky, which is given as in the order of 2.5 candles per square inch.

From this will be gathered the need for the judicious application of modern light sources and for suitable methods to be applied to suppress glare.

Direct Lighting.—There are in the main three methods applied to the lighting of interiors—i. e., direct, semi-indirect, and indirect.

Direct lighting is unquestionably the most efficient, and results can be predetermined with extreme accuracy. This method is least dependent upon favorable surroundings, i. e., those having a high coefficient of reflection.

By direct lighting with prismatic reflectors it is possible to redirect 75 per cent of the total light immediately to your working plane while transmitting, in addition, 20 per cent for the illumination of walls and ceiling.

In general practice with direct lighting it is found that at least three distinct and definite types of light distribution are necessary. These, for distinction, are usually termed extensive, intensive, and focussing.

The extensive type reflectors are required for the lighting of low buildings, or where the distance between the points is rather great. The correct spacing ratio—i. e., distance apart to height—for this type reflector is 2 to 1 for the attainment of uniform lighting. Thus, for points spaced, say, 18 feet apart, the correct height would be 9 feet above the plane you are illuminating, which is usually 2 ft. 6 in. above he floor level.

The intensive type reflectors are required for the illumination of buildings with average ceiling heights and spacings. The correct ratio in this case for uniform lighting is 1½ to 1, thus, for the example cited above—1. e., 18-foot spacing—the correct height would be 12 feet.

The focussing type reflectors are required for the lighting of buildings having high ceilings. In addition, they are employed for the efficient lighting of buildings with galleries, where the low mounting of light units would bring them into the direct range of vision. In other cases the focussing type is used where concealed lighting effects are aimed at.

Particularly are focussing type units necessary in the case of factory lighting with overhead traveling cranes. In practice it is generally desirable to adopt as high a mounting height as possible, consistent, of course, with reasonable accessibility. By doing this you reduce the liability of glare, and it is particularly noticeable the extent to which shadows are reduced in consequence. This latter point is emphasized particularly in school lighting where you get a rising floor level.

Now, in adopting these greater mounting heights it does not allow that the lighting efficiency of an installation suffers in consequence.

It is now as well to consider the various media available for the control of light, and to see how far they may be expected to comply with the requirements as set out above.

From the point of view of efficiency and flexibility of control, also for complete conformity with the fundamental laws of optics, we will first consider prismatic glass reflectors. These reflectors are designed on the principle of total reflection, and by modification in the contour it is possible to obtain any type of light distribution from extensive to extremely concentrating.

Opalescent glassware, while giving good diffusion, has not such complete control of the light. Incident rays on reaching the opal surface are mostly broken up and scattered more or less equally in all directions. Thus while the contour of an opalescent reflector may be varied as much as is desired, it does not appreciably affect its final light distribution curve, which remains of a general character.

Vitreous enameled reflectors suffer from the same defect, that alteration in contour does not appreciably alter the character of the final light distribution curve, which limits their application in practice for most efficient lighting.

Semi-Indirect Lighting.—Semi-indirect lighting units comprise a translucent dish made of opalescent glass, prismatic glass, or alabaster. They send most of the light to the ceiling, from which it is reflected downwards, but a certain percentage passes through the unit itself, depending upon the density of the medium.

This method of lighting must of necessity be more wasteful than direct lighting, considered from the point of view into a secondary source. The reflection coefficient for a good white ceiling is 82 per cent, which immediately creates an absorption independent of that of the unit itself.

In semi-indirect lighting, therefore, it is necessary for its successful application that the ceilings are made as light in color as possible, also that they are plain surfaces as free from obstruction as possible. It is desirable to bear in mind subsequent deterioration of a ceiling with age, which naturally has a bearing on the maintenance of efficiency of this system. The system should not, of course, be applied to situations with roof lights, etc., otherwise a very heavy loss will result.

The use of a ceiling as a reflector is unscientific, and the results unbalanced, for the reason that attention can best be concentrated upon a given object when it is well illuminated and the surroundings are not made to predominate. The latter point is accentuated in the case of totally indirect lighting where the source appears as an opaque body.

Semi-indirect lighting came into prominence in the early days of the gas-filled lamp. The latter having a much higher intrinsic brilliancy than the former metal filament lamps, they required greater diffusion. In many cases this was overcome by the wholesale application of opalescent bowls, but the inefficiency of this method immediately took away the benefits that should otherwise have been derived from the increased candle-power which these lamps made available.

On investigation it will be found that large numbers of semi-indirect lighting installations are being replaced by more efficient means, and the solution seems to rest in a return to units of a direct character, but offering a higher degree of diffusion. Illuminating engineers have been engaged for some time now towards this ideal, and already several most promising new units have been made available.

* * * *

Find a Hobby

The president of the Rockefeller Foundation is probably right in saying that one trouble with the American business man is that he takes himself too seriously. Dr. Vincent suggests that the sense of humor might be cultivated to advantage.

The sense of humor is defined aptly enough by one authority as a sense of proportion. The things from which we extract amusement are those which we are able to laugh at because we appraise them as being comparatively trivial, as a good many are over which we waste too much gray matter. "No laughing matter" is not by accident a common phrase. It is applied, however, to a lot of things that are worth at least a smile.

Having developed the sense of humor, the now weary business man will not infallibly be a clown. He will be able to see, for illustration, the futility of living in a treadmill. He will not necessarily immure himself in a library of joke books when he closes his rolltop desk. He may go in for golf. Or radio. Or philately, although this puts something of a strain on our idea of the sense of proportion. But whatever he does, it will not be work exclusively. It will be all the better if a hobby so takes possession of him that it stimulates him to cut out some unnecessary business trivialities, make his letters shorter, and put more responsibility on his subordinates, who are just aching to develop a sense of proportion of their own.

It is a subject peculiarly fit for consideration now that spring is here—or now that it is due, anyway. There is a long season ahead that is going to offer plenty of opportunities for diversion; the call of the garden as a matter of fact should be sufficient for the moment. The thing to do is to get a hobby, preferably an out-of-door one, started while the season is young. It will help make the year seem shorter, and no really worthwhile task will suffer on that account.—Portland Oregonian.

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Bamboo As a Reinforcing for Concrete

Bamboo which has been chemically treated is used as a reinforcing for concrete in Japan, and according to Mr. Henry C. Hitchcock, the American consul, Nagasaki, Japan, the chemicals used in treating the bamboo are apparently known only to the few who have made use of them.

AIRPLANE VIEW, HOUSE AND GROUNDS OF MESSRS. ADOLPH AND EUGENE BERNHEIMER HOLLYWOOD, CALIFORNIA

"The Castle on the Hill" (Yama Shiro)

By GEO. V. O'DODD

HOLLYWOOD heretofore has been known solely as the world's leading movie metropolis. But every day it is becoming also a city of beautiful homes, and owes to the Messrs. Adolph and Eugene Bernheimer perhaps more credit for its beautiful homes than any one else in the city. Rising from the crest of the highest foothill in the Santa Monica mountains and overlooking the city of Hollywood and Los Angeles, stands (Yama Shiro), "The Castle on the Hill." The building, together with its many approaches, covers an area of about seven acres.

The grounds are reached by two approaches, one from the main road at the base of the hill, the other a long flight of stairs, broken into short runs, first by the huge entrance gate, flanked by its characteristic Jap sentry boxes, and beyond that by high kiosk-covered resting platforms to the lower terrace of the hill.

The architecture in "The Castle on the Hill" is strangely reminiscent of that of the sixteenth century, when Japanese art assimilating that of Chinese and Korean, to which it owed its origin, had reached its highest state of development, with an individuality heretofore unknown. Enrichments of the most delicate carvings of birds, flowers, and water effects, all in wood, and of hand-wrought metal work, covering the intricate and ingeniously arranged structural timbering, supporting the great overhangs of tile-covered roofs, were some of the characteristics of this period.

While following closely, both in plan and detail, the best models of this type in the Orient, the chief aim was to sacrifice nothing in the

PAGODA AND LAKE, HOUSE OF MESSRS. ADOLPH AND EUGENE BERNHEIMER HOLLYWOOD, CALIFORNIA

BUNGALOW AND WATERFALL, HOUSE OF MESSRS. ADOLPH AND EUGENE BERNHEIMER HOLLYWOOD, CALIFORNIA

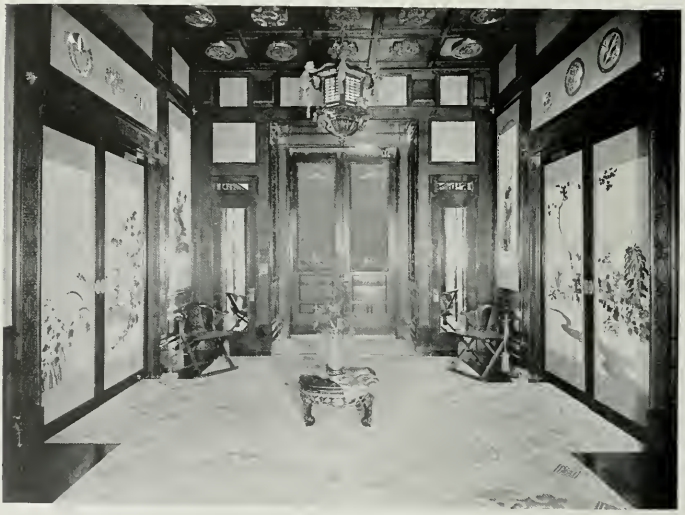
MAIN FRONT, HOUSE OF MESSRS. ADOLPH AND EUGENE BERNHEIMER
HOLLYWOOD, CALIFORNIA

PATIO, HOUSE OF MESSRS. ADOLPH AND EUGENE BERNHEIMER
HOLLYWOOD, CALIFORNIA

PATIO, HOUSE OF MESSRS. ADOLPH AND EUGENE BERNHEIMER
HOLLYWOOD, CALIFORNIA

SMOKING ROOM, HOUSE OF MESSRS. ADOLPH AND EUGENE BERNHEIMER
HOLLYWOOD, CALIFORNIA

TEA ROOM, HOUSE OF MESSRS. ADOLPH AND EUGENE BERNHEIMER
HOLLYWOOD, CALIFORNIA



ENTRANCE HALL, HOUSE OF ADOLPH AND EUGENE BERNHEIMER
HOLLYWOOD, CALIFORNIA

way of more modern comforts and conveniences. The main building is 116 square feet in plan, with a sunken inner court or patio 40 feet in either direction. All the living rooms of the castle open upon this inner court, set in the center of which is a splendid example of antique Japanese modeling in the form of a bronze fountain. Bronze lanterns crown the corner posts of the patio and hang from the corner rafters of the overhanging roof.

Richly-carved wood panels of "Rammas" are run as a frieze over the doors between the pilasters which mark the location of timber corbelling. Entrance to the inner court from the outside is gained throug three entrances, one on each side, with the main entrance at the front. These doors lead to lofty entrance halls, with coffered ceilings paneled with gilded carvings. Painted and richly embroidered panels, set in the wainscots and framed in woodwork carved in geometric tracery and the characteristic Chinese key," cover the walls. The sides of the wall facing the inner court are constructed entirely of glass in the form of accordian doors, which fold back against the cross walls, throwing open entrance halls to the inner enclosure or patio.

Several features that are extraordinary are incorporated in the drawing room located at the northern end of the inner court.

A platform at the north end of the drawing room is raised about 16 inches above the floor level and covered with soft Japanese grass matting two inches thick; it is used as a settee. A picture is formed on the walls by painting on a series of screens set in the lacquered frames enriched with hand-wrought metal. It produces a very beautiful wall and harmonizes beautifully with the ceiling.

Flanking the entrance door at the south end of the rooms are two "Tonkanomas." The "Tonkanomas" in the Japanese homes are shrines for worshiping, and are hung with sacred pictures and images. In this particular case they form small alcoves wherein are placed richly-carved cabinets and beautifully embroidered screens.

The ceiling of this room is carved in wood in the form of birds, garlands of flowers and water effects, all planted on a ground work of silk, which forms the general decorative feature of the same.

The tea room, 39 feet long, with its carved and gilded panels and hand-wrought metal, has the south wall constructed on the same principle as the accordian doors, so that in its entire length it can be thrown open to the inner court or patio. The built-in raised settee, as in the drawing room, is a feature of the tea room.

The dining room in the north-west corner of the court is wainscoted in oak from the floor to the ceiling, the upper panels being beautiful examples of modern Japanese pictorial embroidery.

Some of the finest Japanese carvings in the world are represented in the center piece of the lighting fixtures, and the fowls of the air are set in the corner of the silk-covered ceiling. All the metal work, carvings, lighting fixtures, embroideries, painted panels and furnishings were made in Japan by the Japanese people.

Concerning the art panels, which had not arrived from abroad when the woodwork was set up, it was necessary to exercise extreme care in dimensioning the spaces into which they were to fit. Enough allowances were made for possible variations from sizes that were sent to the artists in Japan, by making these spaces somewhat larger than the panels they were to frame. This also permitted the panels to be firmly secured in place to the backing of the wainscot by small metal clips—a

DINING ROOM, HOUSE OF MESSRS. ADOLPH AND EUGENE BERNHEIMER
HOLLYWOOD, CALIFORNIA

necessary expedient, as the designs of the panels were worked to the very edge. A broad surface mould planted on the stiles and rails of the wainscoting and overlapping the edges of same was made to act as a frame to the panel, and as a closer to the space between the panel edge of the woodwork.

The preparation of carefully drawn details in the construction of the lighting fixtures prevented difficulties. Problems like these were arising continually, each claiming consideration and forcing its own solution.

The buildings are of native woods; the walls, rails, porches, retaining walls, ornamented staircase, etc., are of reinforced concrete. The overlaps of the roofs are eight feet, supported by a series of corbels and cantilevers extending from the main walls of the building in tiers. The exposed timberings are ornamented by hand-wrought metal work, and the ends of same, including the ends of all rafters, are metal tipped.

* * *

Secretary Hoover Says: "Build a Home"

Herbert Hoover says: "There is no incentive to thrift like the ownership of property. The man who owns his own home has a happy sense of security. He will invest his hard-earned savings to improve the house he owns. He will develop it and defend it. No man ever worked for or fought for a boarding house."

Honesty in Architecture — a Tribute and a Plea

AMERICAN architecture of this generation and the past has lacked something vital. So, too, has much of the architecture of Europe. Every observer of even moderate discrimination has sensed it; yet neither the deepest student nor the most able worker has wholly succeeded in supplying the lack. Probably we are too impatient, says a writer in Engineering and Contracting. It is easy to forget that neither classical nor Gothic architecture grew to perfection in one or in two generations.

Likewise it is easy to forget the completeness of the change in the basic materials of architecture—that steel has succeeded stone and brick as the supporting medium, and that while these two latter materials are actually useful in walls and as wall coverings, the attempt to make them look like supporting elements is both falsehood and foolishness. Here, probably, is our greatest architectural lack—the lack of truth. Progress and business economics have required that we use structural steel, but among our architects there was no genius who knew at once how to treat the new material. Not knowing what else to do they began by clothing it in the external garb of its predecessors—a garb which became worse as the structural design improved.

Slowly and somewhat painfully there has grown the understanding that architecture should express facts, not falsehoods, an enlightenment now attested by more than one fine building, but not yet spread throughout the whole of the profession. Neither have we reason to think that we have yet attained a fully developed style. Improvements there will be certainly; radical changes there may be.

Mr. Henry S. Churchill, writing in The New Republic, under the title "Architecture: A Neglected Art," strikes at the heart of certain of the problems of this subject. He treats primarily of architecture, art critics, and the daily and periodical press, but he does not limit his discussion to these subjects and their inter-relation. He expresses himself vigorously and sometimes extremely. He says:

"We are born in buildings, eat, sleep, work, and sometimes die in them. They are difficult for even the most unaesthetic men to eliminate from their vision. Yet in spite of all this no one sees them.

"Architecture, the most important of all the arts to the Man in the Street, has been so long pronounced dead by the critics of its more volatile sisters, and so ignored by them, that it is brought even less to the attention of the public than are the latest designs in Greenwich Village hand-painted shower baths. In fact, the public, which only knows what it is told, probably does not realize that architecture is what critics are composed of.

"Why is not a newly-constructed skyscraper as good material for a review or comment as the latest book or the oldest music?

"It is a singular fact that in all the columns expended on the controversy over the technical methods employed in the Cunard building frescoes, not a line was given to the building itself. No voice is raised in condemnation or derision when Greek temples are piled one upon another like a layer-cake. No voice praises when a cloud-gathering tower flings a fair head above the purple city; no prophecy is made when honest concrete undisguised climbs eighteen stories above the pavement.

"Good and bad alike go unnoticed, and the architect works out his own salvation, uncriticized except by his fellow-practitioners, unaware of the judgment of his contemporaries.

"Not that contemporary judgments are of any constructive value to the artist; his achievement must come from inner conviction, not outside forces. It is in confirming the worth-whileness of having any conviction at all that such judgments are valuable; as a demonstration that effort spent on some endeavor is recognizable by others; as an assurance of that public interest without which artistic striving falls to the level of the work of the bookkeeper who labors over his caligraphy. Such, unfortunately, is the position of the architects.

"The reason for this state of affairs is often ascribed to the architects themselves. Time and again it is said that no press representative can worm any information from them. This is in part true; but it must be remembered that the architect is a hybrid being, an anomalous species on the borderland between a 'practical business man' and a creative artist; moreover, that he is torn between a curiously self-effacing code of ethics on the one hand and ruthless business grabbing on the other.

"However, while a consideration of the business side of architecture is very interesting in its bearing on the art, it need not detain us here. It is enough to say that unless an architect is highly efficient, his office highly organized, he is never able to command that confidence of capital which is a sine qua non of scope for this art. The art of architecture requires money for its execution.

"A seventeen-story apartment house ought to provoke at least as intellectually honest critical writing as a bedroom farce which never outlasts one season.

"The truth is, the public 'cares for none of these things.' It does not want criticism of architecture as it does of music and books and batiks; architecture does not interest it. There are several reasons for this. Our cultural education rarely concerns itself with architecture; when it does, it is to completely misinterpret. Understanding of this art does not lie in studying the superficial changes of ornament termed "style" by the professors. It does not lie in eggs-and-darts, acanthus leaves, or grotesque, but in the study of the structural system of which these are only an efflorescence. It lies in the difference between the post-and-lintel of the Greeks, the arch of the Romans, the steel of today. It lies in the study of the influence and adaptation of materials: marble, concrete, terra-cotta; and in the resulting expression of structural function: for, as has been said, "form follows function," and Doric column, Roman vault, Gothic buttress, Baroque contortions even, are inevitable, not fortuitous. Nor in relation to all these must the plan be forgotten, as it so generally is forgotten.

"Architecture, it is true, merely is; but it is here, there, and everywhere, and by that fact has a greater influence on the cultural life of the nation than all the concerts and exhibitions combined. Nor is it as dead as some would have us believe. One of the conditions imposed by constricted space, zoning laws, steel, concrete, glass, a febrile art, vital and nervous as is our civilization, is gathering form and independence. Slowly the old, encumbering dead forms are being pushed off by new necessitous growth, as the dead leaves of an oak are pushed off by the new. Gone is the time when a Venetian palace can be stranded high and dry to do duty as a jewelry store; going the meaningless "orders," the sham masonry, the trumpery ornament and tin cornice.

"Our factories lead the way, ordered more by necessity, constrained less by convention. Of course not every new building is an advance—

neither is every new book or picture; all the arts are clogged with trash. But progress there is, from doubtful aping of the Old World in the name of good taste, to more and more logical, powerful expression of today, coming from new men, new materials, new realization of the brilliant, vulgar, overwhelming life of the New World."

* * *

The Architect and the Cut Stone Contractor

WITH specialization the order of the day in modern construction, it requires the hearty co-operation of all engaged in the building industry, from the architect down to the sub-contractor who installs the window shades and fixtures, to push construction work through with expediency. Speaking particularly upon the relation that should exist between the architect and the cut stone contractor, Mr. F. D. Kellogg, Secretary-Treasurer of the Ohio Cut Stone Company, said at a recent convention:

I wish to present for your consideration my impressions of the relations now existing between the architect and the cut stone contractor received from our experiences in and about Cleveland and the relations which I believe **should** exist in every instance between the architect and the cut stone contractor, regardless of the locality.

I think that some architects are making a mistake through their failure to consult with a cut stone contractor during the preparation of plans for buildings in which it is the intention to use stone. In most instances it has been our experience that the architect prepares his plans, distributes them among the general contractors when ready for bids, and the cut stone contractors are then requested by the various general contractors to furnish them with cut stone proposals. This means that it is then too late for the cut stone contractor to make any suggestions to the architect direct, along the lines of either improving the construction of the stone work, reducing the cost thereof without seriously affecting the appearance of the stone, or to advise the architect with reference to providing for the proper projection, simplifying the moulds, cutting of drips, etc., etc. The result is that the general contractor receives from the cut stone contractor a proposal for the stone work based on furnishing work strictly as called for by the architects' plans, in many cases resulting in the stone figure being very much higher than is necessary, with the final result that frequently imitation stone or other inferior material is adopted and used. I am firmly of the opinion that the cut stone contractor can be of invaluable assistance to the architect during the preparation of the drawings, in the same manner as I understand the terra cotta manufacturers co-operate with the architects, and even go so far as to prepare elevations and terra cotta details.

The question then follows: "How can we educate the architects so that they will call in the cut stone contractors when they are considering all the questions pertaining to stone work, such as designing, kind of material, finish, etc.?" I believe the quickest way to attain this result is by continuously reminding the architects when calling upon them that we are not only willing but anxious to furnish such service, and wherever it is practicable offer to prepare preliminary sketches either of elevations and details or both.

I am informed that the American Face Brick Association and the Hollow Tile Association have service bureaus which furnish to architects booklets showing exterior and floor plans of residences, garages, moving

picture theaters, and buildings of similar type. Through this method, I understand, these associations have built up a large volume of business, consisting of comparatively small operations, thereby insuring to these manufacturers a steady demand for their materials so that they do not have to rely upon the large operations as was formerly the case.

At this point I wish to say that I think the members of our Association are greatly indebted to the Indiana Limestone Association for the splendid work it has done along the lines of educating the architects to the use of stone. We feel that whatever is done to promulgate the use of any particular kind of stone is helpful to the entire stone industry, and I cannot speak too highly of the activities carried on by the Indiana Limestone Association.

Now as to the relations which should exist between the architect and the cut stone contractor, in addition to points already covered:

I have frequently heard raised by the cut stone contractors the question as to whether or not it is fair for the architect to put on to the stone contractor the burden of preparing working drawings. Some of them are of the opinion that the architects are "passing the buck" by so doing and that the preparation of working drawings is something which should be done by the architect. Personally, I cannot agree with that idea. I think it is very much better for the cut stone contractor to prepare his own working drawings, as by so doing it affords him the opportunity of showing how the stone should be properly jointed and also possibly enable him to save unnecessary material and labor. Furthermore, as I have stated heretofore, I believe that the more we are able to relieve the architect of drafting or other work the more disposed he will be to use stone. It is true that preparation of shop drawings is expensive, but that item should be included in our costs and consequently considered when preparing our proposal.

Another matter in connection with which there is considerable room for improvement is the short length of time which we are often given to take off quantities and make up our proposals for projects. Quite frequently the architect or contractor calls up today and says that he must have a figure on a certain job by tomorrow night. Inasmuch as in the average run of buildings the cut stone work is one of the most important exterior features, it seems as though the architect should be able, as a rule, to take this matter up with the cut stone contractor far enough ahead so that this emergency figuring would be eliminated. Of course, we all realize that figures made up in a great hurry are not made as accurately as they should be, sometimes even without being checked over, and ordinarily I think it is true that in making such figures it is only natural for us to make them plenty high enough to be consistent with sound business.

In conclusion, let me say that as I look at it, there is a very wide breach at the present time between the architect and the cut stone contractor. The average architect holds himself aloof and I am afraid feels that it would be lowering his dignity in case he frequently called in a cut stone contractor for consultation. He apparently is forgetting that this is a period of "specialization," and it would not be considered an indication of ignorance or inexperience on the part of the architect if he admitted that he could profit through close co-operation with the cut stone contractor.

Reflections on the Grauman Metropolitan Theater, Los Angeles*

By BERNARD R. MAYBECK, A. I. A.

SINCE the French Revolution in 1793 there has followed an era of archaeological architecture. Creative architecture seems to have ceased for a century or more. During those hundred years the new element was the planning of monumental construction and city planning. Beyond these the architects of the United States appear to have been satisfied with a pot-pourri of past forms, and to be a good architect you must be true to style. If you have a University building to design, the wall surfaces must appear convincingly of the Gothic period of domestic architecture, with much stone and small openings. No doubt, the beauty of this construction is often attained, but only at the discomfort of the occupant.

Few people not directly connected with the profession will realize that forms of the past have been made to serve modern needs, and that in accomplishing this they are often cramped, and that honesty of construction is sacrificed to produce a desired effect. Paint and putty are used as substitutes for stone. The result, however, is not convincing, and the unsophisticated layman frequently says: Why don't architects invent a new style of architecture?

Styles are not invented. They grow.

The Egyptians and the Greeks made their styles grow gradually and slowly—to what perfection can be seen in the temple groups of Karnak and environs and in the Parthenon. These styles developed out of the needs of their times, coupled with the materials used in construction. Their beauty resulted from the fact that the eye of the designers constantly compared various possibilities and chose the best one—a slow process, which we of today can shorten by the modern method of design.

The ancients put into their building, quite unconsciously, the story of their environment and their life. This is more evident in the cases of Egyptian and Greek art, because so much of these civilizations is gone. In looking at a building of the past, one gets the impressions and sensations that would be produced if time could be reversed to the epoch of its construction. To behold and walk through Rheims is to sense something that was living in France from the twelfth to the fifteenth centuries.

To create in art the artist must not be conscious of doing anything but the obvious, using the various forms of art in order to express that something which his heart tries to tell; for the artist produces through the heart, as the Egyptians believed, using "heart" for want of a better term, unless "hunch" be more intelligible to the modern. If I were to suggest a method of "creating" architecture, I should say, build in the modern way, and then see to it that the forms and colors are agreeable to the eye; just as the sculptor models a human figure to express the artist's "hunch" and gives to the members of the body agreeable proportions.

Suppose you wish to build in the Southern part of California. You must first live in the country, travel over its hills, which convey their own characteristic impression of innumerable domes, with unlimited chaparral and sage brush, endless and endless, like the timelessness and endlessness of eternity. Another inspiration will be evoked by the

* This theater was illustrated in detail in The Architect and Engineer for May, 1923.

ASBESTOS CURTAIN, GRAUMAN'S METROPOLITAN THEATER, LOS ANGELES
William Lee Woollett, Architect

MODEL OF "MR. GOD" PANEL, GRAUMAN'S METROPOLITAN THEATER
(See Description on Opposite Page)

deserts of Arizona and New Mexico. Go to the Grand Canyon, behold the history of ages of the earth, its surface rent apart to tell man the story. Watch the changing colors of the canyon. Let all this simmer in the heart of the architect.

In the year 1923 we build of concrete. Boxes made of wooden boards are filled with a cement mud, and when this has hardened the boards are removed, leaving a solid stone. The architect of the Grauman Metropolitan Theater is from his own confession in concrete, a product of the West. He is a mirror of the desert, the mountains covered with sage brush, which are always before his eyes in Los Angeles. The Western Indian has put his stamp on his art, and the Oriental has added his exuberant admixture. All these influences are felt in the Grauman Theater. Here is a new art, if art can be new. Or rather it is a creation, not a copy of this or that in a pure style. The architect has taken the bare concrete forms as they are required for the support of balconies, floors and roofs, and without plastering or fake architectural construction, he has used the walls and structure for decorative purposes.

Photographs do not convey the story of the Grauman Metropolitan Theater. Any picture of any part should be in color. Better yet, go in person and visit this inspiring enclosure with the colored lighting, and you will feel the West—all that is inspiring—and then let your mind travel back to McDougal Street of New York, with children as numerous as the stars forming a blockade more embarrassing than the automobiles in Los Angeles business streets, and you wonder why they do not go to the great West. These thoughts and others come to your mind when you walk through the spaces of the Grauman Theater.

As a work of creative art, the Mezzanine Foyer is a good illustration. There is a sense of spaciousness, of order, of color, of grandeur that is indiscribable. One part of the hall is low, the ceiling being the underside of the auditorium balcony; the trusses which carry the balcony are decorated without destroying their members, the high side opening into the lobby.

The Grauman Theater marks the beginning of a new era in Art; that is, we are begining a creative period of molding the forms themselves into beauty.

This thought stands out clearly, that as the business man is beginning to realize the value of art, the outlook for the future is promising. The time is rapidly passing when the layman shall dictate what the architect shall do. Instead, he will colaborate and enjoy the work as he sees it progress.

* * *

In the presentation of Mr. Woollett's Grauman Metropolitan Theater in the May Architect and Engineer, several views of the asbestos curtain evoked so much interest that Mr. Woollett was asked to describe the significance of the design. Here is his conception of it:

The asbestos curtain is painted in a free, open style in patches of vibrating color. The subject is a satire on Wells' History of the World. At the bottom appears the intertidal scum out of which the world as we know it is supposed to have come. In the band depicting the intertidal scum is seen claw and crawly forms and conventionalized waterfowls. Above the intertidal scum are great worm forms, birds of paradise, saber-toothed tiger, and long-horned cattle. At the center and dividing the intertidal scum are two human figures upholding with their hands the

human heart. Out of the center also comes the tree of life, from which springs the poppies of self-sacrifice. In the center of the tree of life are branches of fire, out of which comes the Red Cross motif. Adam is seen handing back the apple to the serpent. Thus is covered the period of life in the earth up to date.

Another feature which has aroused more than ordinary interest is the "Mr. God Panel," which the author describes as follows:

The sarcophagus of the "unknown dead" is shown at the bottom of the panel, with the wings of the cherubim on either side. The balance of the panel represents the thoughts of the unknown dead. In satirical fashion the good is balanced against the evil, as shown by great scales. On one side the two figures sitting in the scale have ass' heads, on the other side the good people are normal in form. The chain of human figures on the right is composed of healthy, normal, human bodies, representing gladness of physical effort of holding on. On the other side the figures are afraid that they will fall. In the center is a great complex figure with many different denominations of wings, rays, flames, pin feathers, jewels and rich clothing.

* * *

Concrete Floors for Dancing

PERHAPS the simplest and cheapest way to prepare an existing smooth, hard concrete surface for dancing is to treat it with liquid soap. The soap should be worked up into a lather and worked into the floor by means of a scrubbing brush, after which an occasional application of powdered soap to the floor will keep it in good condition. It may be necessary to apply several coats of the liquid soap if the floor is somewhat rough and porous, before a smooth finish will be obtained suitable for dancing.

Another way is to treat the floor with a mixture of paraffin wax and turpentine. Both turpentine and paraffin wax should be of good grade and no more paraffin used than will be readily dissolved in the turpentine. Only enough of the mixture should be applied to the floor to thoroughly fill the pores. An excess of material would result in a sticky film on the surface. After the turpentine and paraffin wax have been allowed to dry, the surface should be treated with powdered wax, applied in the same manner as to an ordinary wooden finished floor.

A third method is to treat the floor with heated wax driven into the pores of the concrete by a machine similar to a blow torch. The permanence of this treatment will depend to a large extent on the penetration obtained for the heated wax and the penetration in turn will depend to a large extent on the temperature of the concrete. If it is possible to heat the concrete immediately preceding the application of the melted wax and to continue heating with a torch, the maximum penetration will be obtained. A satisfactory dancing surface may then be maintained by the application of wax used in the same manner as on a wooden dance floor.—Concrete, Detroit.

* * * *

The Work of Weeks & Day

The July number of The Architect and Engineer will show a splendid collection of views of buildings, preliminary sketches, drawings and sketches by Messrs. Weeks and Day, architects of San Francisco. Pictures of the new Capitol Extension buildings under construction in Sacramento and the proposed Scottish Rite Cathedral for the California Commandary will be included in the number.

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Fire Prevention

By F. W. FITZPATRICK

UP to the present the American people have been wasteful, criminally so, in much they have done. As a nation, our lands and forests have been lavishly misused, squandered, our mines have been recklessly worked, our great natural resources drawn upon as if they were inexhaustible, and only today are we beginning to awaken to the necessity of husbanding them for the morrow. So with our buildings. We have been stupidly trifling with them, spending great sums in lavish decoration, in beautiful embellishment of loose-jointed, flimsy, weak, evanescent skeletons, and the result is that our annual ash-heap has assumed stupendous dimensions.

Everyone has built as cheaply and as flimsily as he dared, in the hope that his property would escape fire, and he has joined in a gamble with the insurance companies on that hypothesis, forgetting that losses suffered by others react upon the entire community, himself included, and enhance the prices of everything to everyone, even the insurance for his protection. The way we have been doing is much like the riotously inclined individual who deliberately sets out on a drunken debauch, but takes a detective along with him for his protection. Of course, he has to pay the detective a good fee for his services. So do we pay our insurance protectors a good fee. Obviously, the wiser course in both cases is to arrange matters so that we do not need so much protection.

Statistics are boresome; we will not go into them very deeply—and, alas! there are tons of them—but to get our subject in hand we must glance at a couple of basic figures. Let us get well into mind that until after the war, in few years did we add much over $680,000,000 of new building and addition or repair to old ones. That figure represents fairly the total amount of building construction done in the United States in our cities and upon our farms. In 1919 that total rose to $1,540,000,000, in 1920 to $1,580,000,000, in 1921 to $1,740,000,000, and this year, so far, including August, it has jumped to $2,384,000,000!

A splendid showing of construction work, not railroads, nor ships, but just buildings, factories, churches, hotels, theaters, homes, barns and such.

But see what we allow fire to do to us. Take 1920, for example: $1,580,000,000 is the value of new construction and repairs to old buildings. During that year our fire losses in buildings and contents, in cities and on farms, reached the sum of $580,000,000, or about $5.24 per capita. Plus that we paid out during that year—to keep our comparison in the same period—something like $546,000,000 in premium on insurance as a safeguard against fire (?), and got back $340,000,000 in paid losses, but we also paid out for fire departments and such other safeguards or protection against fire another $500,000,000. Is not the total of fire cost appalling?

We are dealing with property losses, but remember that every year some 15,000 lives also are lost in fire! And there are incalculable losses to business in stoppage of work in factories and such places after fires, loss of rentals and the other numerous incidental losses that we are not taking into account at all.

Compare our $5.24 per capita of actually burnt property with like figures in European countries in normal times. In France, Germany, Italy and Switzerland the loss averages 35 cents per capita. In Italy it is as low as 12 cents. Europe will average .86 fires per 1000 population,

whilst here it is 4.05 per 1000. And Glasgow's fire losses average $325,000 per year, whilst Boston's (with not quite so much population) climbs to over $2,000,000.

Talk about "race-suicide," why if we are not possessed of a suicidal mania regarding buildings and their contents, too, I am sure I don't know what to call whatever we are suffering from in regard to fire.

The cure is simple. Build better buildings. "The insurance companies do not demand it," say you; "the reduction in premiums doesn't warrant it." As time goes on those who heed this advice will prove themselves masters of the situation and the only people who will have satisfactorily solved the problem with profit to themselves. Insurance companies are not in business for their health alone. While many look upon them as more or less charitable in their activities, it can be safely predicted that when there ceases to be a profit in the process underwriting will also cease. As centers of population become more densely settled and built up, so, in spite of the expensively maintained fire departments, fire losses increase, and the burden of fire taxation is proportionately augmented and must be carried by the gambler who risks everything and by the "conservative" man who only builds as well as the insurance companies insist he shall, share and share alike. The man alone who has emancipated himself from the thralldom of custom and precedent and built a fireproof building can snap his fingers at insurance. "Fireproof construction does not burn, and fire-protected construction cannot be destroyed"—nor need it be heavily insured.

The whole fire situation could be absolutely controlled by the insurance people. They have given a hand to fire prevention. Years ago they pooh-poohed it, but now have experts, engineers, bureaus all at work bettering conditions. I would ask them to take another step, a more drastic inspection of buildings, particularly the public and semi-public ones—theatres, hotels, offices, factories, and such. A fire door found blocked open, old hose dried out and useless, rusted stand pipes, sprinklers and such equipment, should subject a building to increased rates, a species of fine; a second offence or failure to do as notified, cancellation of insurance, and you have such of our fire loss right in hand. Costs something, yes, but worth it. A bit heavier premium to pay for inspection, but after a time all premiums could be lowered. Even repairs could be done by the insurance companies, repairs or replacement needed in fire equipment, and charged to the owners of buildings. All the companies are together, virtually one affair, and the underwriters, as a body, have absolute autocratic power by reason of their rates and schedules. If they really want to reduce fire losses, let them prove it by initiating this system.

It may take time to secure requisite legislation or authority, for the owners of cheap buildings will object, but the cities—urged by insurance —can do something else we have clamored for for years, something most effective, the "labelling" of buildings. Classify them and label conspicuously at their main entrances, "Fire Resisting," "Ordinary," "Dangerous." Note the alacrity with which the man with "Dangerous" over his door will revamp and better his building so as to merit a higher classification, or he will tear it down altogether and build decently.

Then we can urge legislation that will amend our system of taxation. Now, the more a man spends on his building the better he builds it, the safer it is, requiring the minimum of city protection, fire departments, water pressure and all that, why, the greater his taxes! Change that so the fellow with the old, inflammable tinder-box of a building—requiring the maximum of city protection and constituting the greatest

danger to all surrounding property—will pay the higher rate of taxation.

Those are the things that will bring people to time, penalization, touching their pocket books.

These are not heroic or revolutionary methods, and yet, wherever applied, they would work marvels in the way of bettering conditions. There is too much apathy in this fire matter, and the authorities who know what it really means are fearful of applying the restrictions that are needed, because, forsooth, some of these might too nearly touch powerful constituents or friends. We may only hope to attain the desired ends by forcing these authorities to do what is right via the pressure of public opinion. It is passing strange how those things run, but interesting withal to find that in all reforms the masses have to be compelled to do certain things by authority, and the authorities have in turn to be compelled to apply these compulsory measures by the weight of public opinion; public opinion in turn is molded, created by printer's ink, and I know of no cause that deserves better at the hands of the press than does this one of Fire Prevention.

* * * *

San Francisco Architectural Club Notes

MR. ERNEST WEIHE, winner of the Paris Prize Competition in 1919, has returned to San Francisco after an absence of three years spent in study at Paris, in Italy and other countries of Europe. His return was welcomed by a banquet given by the club in his honor on June 1st, at which a large number were present.

The regular monthly business meeting of the club was held on June 6th. One of the outstanding features was the lecture by Mr. W. L. Stockwell, Illuminating Engineer of the Pacific Gas & Electric Company, on "The Architect as an Illuminating Engineer." The strict attention given during his talk, and the interest manifested in the form of questions advanced to Mr. Stockwell, showed that his message had been brought home to the boys. The paper will be published in full in the July number of The Architect and Engineer.

The Pacific Sanitary Manufacturing Company has extended an invitation to the club to pay a visit to their manufacturing plants at Richmond and San Pablo, and the same has been accepted. The date has been set for Saturday, June 30th, when representatives of the company will conduct the members through their plants. Luncheon and refreshments will be served. The members will assemble at the Ferry building in time to take the 8:40 a. m. Southern Pacific boat, from which time they will be in the keeping of the Pacific Sanitary Manufacturing Company until they are again released at the Embarcadero in the evening.

Nominations for treasurer and two directors were made at the last meeting. They were as follows: Treasurer, Mr. Lawrence Keyser; directors, Messrs. John B. McCool and William Rowe.

* * * *

Building Situation Is Optimistic

The fact that some important construction projects have been deferred because of high building costs, marks the definite arrest of any "overplunging" movement. That the peak of prices has been reached there is every good reason to believe. A downward movement may be looked for, but it will be so gradual that those who contemplate building, will gain little, if anything, by postponing their construction plans. If there is no further inflation of prices, architects will make no mistake if they advise their clients to build now.

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Published Monthly in the Interest of the Architects, Structural Engineers, Contractors and the Allied Trades of the Pacific Coast by The Architect and Engineer, Inc.

PUBLICATION OFFICE:
627-629 Foxcroft Building, San Francisco
Telephone Douglas 1828

The publishers disclaim any responsibility for statements made in the advertisements of this magazine.

Terms of Subscription
(Including postage) to all parts of the United States, $2.50 per annum; to Canada 75c additional; to all Foreign points $1 additional

Vol. LXXIII JUNE, 1923 No. 3

PLAN FOR BEAUTY'S SAKE

It is a generally recognized fact that in most American cities we lose so much and miss so many opportunities for beauty by an utter disregard for what has been done before.

There are many instances of the new investor erecting a building entirely out of keeping with the sense of fitness or any thought of harmonizing his new structure with those already existing.

Take almost any group of buildings of good design and even the uninitiated finds a source of pleasure in looking at them, even though he may not know of what type of architecture they belong. Almost everyone enjoys looking at our State Capitol, for it is in a harmonizing setting, but out along the streets of big buildings one may walk for blocks and see as many types of architecture as there are buildings, evidence of all the styles that ever existed, some of which are architectural atrocities.

The trouble is that we tear things up with utter disregard for anything but the almighty dollar that may roll in, not recognizing the fact that a little money expended judiciously may make a thing of beauty out of a utilitarian object and in the long run pay dividends for what extra is expended. We forget that beauty can have a revenue value just as well as the hastily constructed, ugly and out-of-keeping type of structure.

It is a simple matter to do a little planning before building and not only conserve the beauty of a district, but add to it and have a home which you would be proud to show a critical friend of architectural tendency. Look around before building, scrutinize the district, study the types of architecture and try to build a home that will harmonize. You will be repaid many times by the feeling of having done something well, and the satisfaction of owning a beauty spot, which should be the right of every home owner.

FREDERICK H. HARRISON.

A BEAUTIFUL GARDEN EVOKES INWARD HAPPINESS

Many people think of home as a picture with the garden merely functioning as a green frame enclosing it. Rather should the home be regarded as the **heart** of each household picture where intimate love shall dwell and hospitality cheer. Let your garden be vital. Let it be so designed and wrought that it shall symbolize a glowing healthful body enveloping that heart with flashes of color, goodly form, rhythmic movement, of telling texture and tone; with pleasant paths as arteries of circulation and still or running water hinting of calm, coolness and purity. Then let the frame of your picture be expressed by the boundary hedges, the nobler forms of the larger trees,

the trees of your neighbor and the distant prospect of hills, meadows, plains or water. Thus with the added blessings of the sun and moon, the play of light and shade, the elements and the seasons, even a small and an humble home becomes through large vision and environment—an estate.

In the earliest hours of planning a new home, think not only of the realty cost and that of the architect and contractor. Think not only of the interior decorator, the lighting fixture expert and the worker in wrought iron. Remember not only the indoor luxuries of the Steinway, the Brunswick and rich rugs. —But pause to consider the need of a great quiet out-of door living room, that it shall provide space for action, contemplation, reverie or repose—that it shall be so furnished as to express charm and invitation. Then will you set aside at the beginning—a purse for bricks and stones and waterways, for walks, seats and sequestered shelters; for plants of such quality and kind that they will grow to be eloquent through merit and of treasured character due to the mother moods of Nature. Remember that the happiness in a home is not half expressed if the garden fails to reveal a countenance of joyous well being, a gentle recognition of the owner's willingness to be generous in meeting its needs and of his keen devotion to its gradual and lovely unfoldment.

Think not that a sum equivalent to ten per cent of the total cost of property and house, will be unreasonable for all of the expense involved in a good garden, especially if the problem is on a hillside or an estate. Unlike the house, the formation of the garden picture may be of such slow sequence as to extend over several seasons or a period of years. But three things are essential.

First—A definite adequate sum should be reserved at the outset to insure a happy result in the garden. This would provide for plans, loam, manure, construction, plants, labor and professional supervision.

Second — A complete planting plan should be carefully studied and rendered by a first-class designer before any work is started.

Third—The development of the plan should be supervised by the designer because he only can happily, logically evolve the picture in his mind. Plants may be compared to the keys of a piano which in order to be effective must have orderly grouping or placement. A first rate planting plan may be likened to superior sheet music of a composer of merit. Yet even if the piano be of the finest quality and workmanship—it avails nothing if there is no trained artist to awaken, rouse and express its potential musical beauty thru interpreting his own compositions or those of the masters. Therefore it is not enough to possess good plants or even in addition an excellent plan, but most indispensable are the touches of happy inspiration in small things that must come through a mastery of the noble art of landscape architecture, through super vision of c o n s t r u c t i o n, plant selection and planting or maintenance on the part of the landscape designer, to interpret his conception, vision or composition in sympathy with the needs of his client and the natural demands of the site.

EMERSON KNIGHT,
Landscape Architect.

ARCHITECTURE AND MOVING PICTURES

Archie Trave, writing in the Washington State Architect, calls attention to the value of the moving picture as a disseminator of knowledge and information, and refers to many notable views of splendid architecture that are practically lost to the spectator because of the rapidity with which the reels are run off.

"We sometimes see the pictures of a horse or athlete run very slow-

ly in order to show the various motions that are carried on," he says. "Now why not slow up a little in the scenery, which is far more important than the exact way in which a hunter jumps the water hazard?"

There is no denying that moving pictures have accomplished a great deal in spreading real knowledge of architecture to the general public. The public is beginning to realize that in some countries architecture is the leading accomplishment and ambition.

A scene in Paris, for instance, will carry one through block after block and mile after mile of beautiful architecture. In fact, we have come to realize that in France and other countries good architecture is the rule and poor architecture the exception.

Of course, architects in general, especially the schooled men, have been more or less familiar with the fact that we have a long ways to go, even to approach Europe in the beauty of its architecture. But the general public had not been cognizant of this fact until the advent of moving pictures.

We have been carried, not only through Europe, but through many other parts of the world. We have found that even South America, in many respects, has superior architecture. We are forced to acknowledge that the mantle of art, inherent in the Latin races, has fallen upon their descendants in Latin America. The beautiful Spanish feeling is as strong here as in old Spain, as evidenced by the growing popularity of Spanish architecture.

We have found that there are magnificent cities containing wonderful, beautiful architecture in South America, such as Rio and Buenos Ayres; and when we compare the pictures of them with some of the work in this country we have good cause to lament.

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With the Architects

Building Reports and Personal Mention of Interest to the Profession

College Of Pacific Buildings

Plans are being completed for a group of eight buildings to be erected in Stockton for the College of the Pacific, now located at San Jose. It is proposed to figure all the buildings at one time and the drawings will be in the hands of contractors in July. The architects of the various structures are as follows:

Administration—Stone & Warner.

Science—Losekann & Clowdsley.

Auditorium and Conservatory—Mayo, Cowell & Bissell.

Two dormitories—Peter Sala.

Gymnasium and dining hall—Wright & Saterlee.

Power plant—Davis, Heller & Pearce.

The latter firm are also to be the supervising architects of the entire scheme.

Six-Story Office Building

Architect B. G. McDougall has completed plans and a contract has been awarded to the Lindgren Company of San Francisco for the construction of a six-story Class A office building on the west side of Sansome street, near California, San Francisco, for Mr. T. C. Kierulff. The entire building is to be occupied by the Insurance Company of North America. The estimated cost of the structure is $135,000.

Addition To Scottish Rite Temple

Architect Carl Werner, Santa Fe building, San Francisco, has been commissioned to prepare plans for a six-story Class A addition to the Scottish Rite Temple at Van Ness avenue and Sutter street, San Francisco. The structure will cost $1,000,000. This building is to be erected by the San Francisco Bodies and is independent of the million dollar edifice to be built by the California Bodies, from plans by Architects Weeks & Day.

Architect Headman Busy

New work in the office of Architect August G. Headman, Call building, San Francisco, includes a $20,000 club building for the San Francisco Dental Fraternity; a $50,000 laundry at 13th and Folsom streets; a one-story reinforced concrete store building for Mr. David Roth on University avenue, near Shattuck, Berkeley; and a two-story store and loft building on Mason street, San Francisco, for Mr. Carlo Matraia.

Los Gatos High School

Architect William H. Weeks has been commissioned to prepare plans for the Los Gatos Union High School District which will spend $250,000 for a group of educational buildings, including classrooms, manual traning, domestic science shops, auditorium and gymnasium. Mr. Weeks has also been appointed architect of the new high school group at Placerville.

Addition To St. Francis Hotel

The St. Francis Hotel has announced that it will begin the construction immediately of a $700,000 wing facing Post street, to be four stories at the present time and later on thirteen stories. The Lindgren Company are to be the builders. This company has also lately received a contract from the American Can Company to erect a $500,000 cannery at 3rd and 21st streets, San Francisco.

Loft Building and Garage

Architect A. A. Cantin of San Francisco, has completed plans for a three-story loft building to be erected on Sacramento street, San Francisco, for the Mergenthaler Linotype Company, and for a one-story reinforced concrete and brick garage to be built on Central avenue, near Park street, Alameda, for M. Franck & Son, of that city.

Engineers Form Partnership

Messrs. Earle Russell and W. H. Ellison have formed a partnership for the practice of structural engineering, with offices in Los Angeles and San Francisco. The Los Angeles office at 747 South Hill street will be in charge of Mr. Russell and the San Francisco office at 369 Pine street will be in charge of Mr. Ellison.

Veterinary Hospital

Architects McWethy & Greenleaf, Dickelman building, Oakland, have prepared plans for a one and two-story brick veterinary hospital for Mr. E. W. Morrison to be erected on San Pablo avenue, between 27th and 28th streets, Oakland. The improvements will cost $30,000.

Palo Alto High School Addition

Plans are being prepared by Architect Birge M. Clark of Palo Alto, for a $150,000 wing to the Palo Alto Union High School.

Sketches for Cathedral

Sketches are being made in the office of Architect Lewis P. Hobart of San Francisco, for the completion of Grace Cathedral, the crypt of which was constructed several years ago. The estimated cost of the completed edifice is in excess of $2,000,000.

Designing Hospital Addition

Architect Sylvain Schnaittacher of San Francisco, has been commissioned to prepare plans for a six-story Class A nurses home to cost $500,000 at the Mount Zion Hospital on Sutter street, between Divisadero and Scott streets, San Francisco.

Store and Office Building

Architects Wythe and Blaine, Central Bank building, Oakland, are completing plans for a three-story Class C store, office and loft building to be erected at 18th street and Broadway, Oakland, for Smith Bros., at a cost of $100,000.

Providence Hospital

Architect R. A. Herold of Sacramento, is preparing plans for a new Sister's of Providence Hospital in Oakland. Mr. Herold is also drawing plans for a three-story reinforced concrete parochial school to be erected at 25th and K streets, Sacramento, for St. Francis Parish.

Wedding Bells

Architect Archie Thomas Newsom of San Francisco, was married June 2nd in Richmond to Miss Gertrude Pulse, sister of Harry W. Pulse and Charles H. Pulse of Richmond. The wedding took place at the Pulse home, 354 Tenth street.

Alameda Sanitarium

Architect Edward T. Foulkes has been commissioned to prepare plans for a three-story reinforced concrete sanitarium at Clinton avenue and Willow street, Alameda, at an estimated cost of $250,000.

San Francisco Lodge Building

San Francisco Lodge, Independent Order of B'nai B'rith, has announced that preliminary plans are being prepared by Architect S. Heiman for a $250,000 lodge building to contain a gymnasium, swimming tank, auditorium, stage, club-rooms and dining hall.

Oakland Bank Building

The Banca Populare Fugazi will erect a bank and store building on the southeast corner of 8th and Broadway, Oakland. It probably will be designed by the Bank's architect, Mr. I. Zanolini. Additional stories will be built later on.

Henry Bacon Honored

Among the Pacific Coast architects who attended the annual convention of the American Institute of Architects in Washington, D. C., last month, were Messrs. W. B. Faville of San Francisco, Sumner P. and Myron Hunt, Robert H. Orr and S. B. Marston of Los Angeles and Ellis F. Lawrence of Portland, Ore. One of the interesting events for the Western delegates was the presentation of a gold medal by the Institute to Mr. Henry Bacon, architect of the Lincoln memorial. The occasion was marked by one of the most gorgeous pageants ever given in the United States, in which 1000 people participated. Hundreds of magnificent banners were draped on the steps of the memorial, and were flooded with many colored lights when President Harding bestowed the medal on Mr. Bacon.

The President was presented to the assembly by Chief Justice Taft. Mr. Bacon, escorted by President Faville and a guard of honor consisting of Daniel Chester French and Jules Guerin, were borne from the eastern end of the great memorial reflecting pool, to the steps of the memorial, while the marine band played the prize song from "The Meistersinger."

Passing of A. Merrill Bowser

The death of Architect A. Merrill Bowser occurred in a San Francisco hospital May 19th, of heart trouble. Mr. Bowser had been in poor health for more than a year, although he was able to be at his office in the Hearst building up to within a few days before his death. Mr. Bowser came to California from Boston, where he was associated with Mr. Thayer under the firm name of Thayer & Bowser. Before practicing alone, Mr. Bowser was in charge of the San Francisco office of Glass & Butner of Fresno. He designed quite a number of attractive homes in the Transbay cities.

To Practice Architecture

Mr. Willis C. Huson, formerly with Architect Louis C. Mullgardt, and later with the California Pottery Company, has opened an office in the Chronicle building, San Francisco, for the practice of architecture. Mr. Huson has quite a little work in prospect, including a $30,000 store building at Santa Barbara; a hollow tile store building in Mill Valley; a garage for the California Fish Company in San Francisco and a bungalow in Mill Valley for Mr. R. L. Hemmingway.

Personal

Architect Loy L. Smith has moved his offices from 804 Higgins building to 218-22 Byrne building, Los Angeles.

* * *

Architect Harold E. Burkett has opened an office in the Commercial building, 546 Pine Ave., Long Beach. Mr. Burkett has been in Long Beach for some time in charge of the architectural work in association with Architect Chas. S. McKenzie of San Jose, designing and superintending the erection of the Sovereign and Artiban apartment buildings.

* * *

The marriage is announced of Architect Harwood Hewitt and Mrs. Ethelyn Kirk. The event occurred April 19. Mr. and Mrs. Hewitt will make their home in Hollywood.

* * *

Architect H. Newton Thornton, 316 Hill building, Santa Ana, is preparing plans for a hospital building to be erected at Santa Ana by the Santa Ana Hospital Association at a cost of $300,000.

* * *

Mr. W. W. Kays of Santa Ana has sold his architectural business to Architect M. Eugene Durfee of Anaheim.

* * *

Mr. Gilbert Stanley Underwood, Architect-Engineer, has opened an office at room 2, second floor, 6779 Hollywood boulevard, Hollywood.

* * *

Architect Clarence L. Jay, formerly of the Hollywood office of the Frank Meline Co. and later in charge of the architectural department of the company's Pasadena office, has opened an office in the Braley building, Raymond Ave., south of Colorado street, Pasadena, for the practice of his profession.

* * *

Mr. Samuel B. Birds, Architect and Engineer, who was recently granted a certificate to practice in California, has opened an office at 305 Citizens National Bank building, Los Angeles. Mr. Birds practiced architecture and engineering for 15 years in Vancouver, Canada, is a licensed architect in British Columbia, a member of the Royal Architectural Institute of Canada, an associate of the Royal Institute of British Architects, London, Eng., and a registered professional engineer in the province of British Columbia. Mr. Birds spent the last seven months in the offices of Architects John Parkinson and Donald B. Parkinson, of Los Angeles.

* * *

Architects Marston, Van Pelt & Maybury announce the opening of their new offices occupying the entire second floor at 25 S. Euclid Ave., Pasadena.

* * *

Architect J. O. Lofquist, formerly of Shea & Lofquist, has returned from New York where he went to settle the estate of relatives. Mr. Lofquist will shortly open an office in San Francisco for the practice of his profession.

* * *

Architect C. O. Clausen of San Francisco, attended the annual Shrine Convention in Washington, D. C.

* * *

Architect Lloyd L. Smith announces the removal of his office from the Higgins building to 218-222 Byrne building, 253 South Broadway at Third street, Los Angeles.

* * *

Architect Thomas Franklin Power has removed his offices from 308 Tajo building to 2615 W. Seventh street, Los Angeles.

Granted Certificates

The State Board of Architecture, Southern Division, has granted certificates for the practice of architecture to the following: Messrs. Harold R. Bobbe, 38 Locust Ave., Long Beach; Harold E. Burket, 305 Commercial building, Lang Beach; Warren A. Dedrick, 38 Locust Ave., Long Beach; Robert M. Finlayson, 389 Sturtevant road, Sierra Madre; Simeon Charles Levi, 4420½ Melrose Ave., Los Angeles; Clarence B. Opperman, 207 S. Granada Ave., Alhambra; John Walker Smart, 301 Alhambra road, Alhambra.

Awards in Architectural Contest

Announcement of the awards in the architectural contest sponsored by the Los Angeles Architectural Club, were made on the evening of May 28 at the booth of the Security Housing Corporation at the Glendale Industrial Exposition. The jury to pass on the drawings submitted, appointed by Mr. Sumner Hunt, president of Southern California Chapter, A. I. A., was composed of Messrs. David C. Allison, Chairman; Frank D. Hudson and Pierpont Davis of Los Angeles.

Designing Factory Addition

Mr. W. W. Hanscom, Consulting Engineer, 848 Clayton street, San Francisco, is preparing plans for a new building which the Pelton Water Wheel Company will erect on the block bounded by 19th, Alabama and Florida streets, San Francisco. The structure will cover ground area 150 x 200, two stories, and will accommodate executive offices, drafting room, pattern shop and pump assembling department.

Five-Story Warehouse

The Standard Sanitary Manufacturing Company will build a five-story and basement reinforced concrete warehouse at 9th and Brannan streets, San Francisco, from plans by Architects Weeks & Day, 315 Montgomery street, San Francisco.

Principles for Guidance of Engineers

A compilation of specific principles of good professional conduct for engineers has just been prepared by the Practice Committee of the American Association of Engineers, of which Mr. E. E. Carpenter of San Francisco, is chairman. These supplement the code of ethics previously adopted by the association. The compilation consists of four parts covering (1) relation of the engineer to the public; (2) relations to clients and employers; (3) relations to employes, and (4) relations to other engineers. It is largely the work of Mr. L. B. Steinman, a member of the committee from New York. Following are the principles laid down under the first two headings:

PART I.

Relations of the Engineer to the Public

1. The engineer should regard his duty to the public welfare as paramount to all other obligations.

2. He should not use his professional standing as a means of sponsoring or promoting commercial or other undertakings of a speculative character.

3. He should accept compensation for his servact or omission, with any illegal or questionable undertaking or participation in any enterprise inimical to the public welfare.

4. He should not advertise in self-laudatory language or in any other manner derogatory to the dignity of his profession.

5. He should avoid any publicity giving the impression that technical service in technical matters can be dispensed with; or that technical proficiency along any line is easy of acquisition; or that exaggerated returns may be expected from any limited course of technical instruction.

6. He should avoid any questionable statements or any statements couched in language that would convey a false impression, in any of his reports, advertisements or articles.

7. When retained to report on any property or project, he should not accept as compensation any stock or other interest in the property or project, or any other contingent fee which could in any way consciously or unconsciously influence the nature of his report and its conclusions.

8. He should avoid entering into any private combination which would restrict free individual competition for professional employment. The matter of proper engineering fees and the methods of making proper tenders on engineering work should be left to professional organizations in order that their backing should inspire public confidence.

9. He should refrain from using any improper or questionable methods of soliciting professional work.

10. He should participate in clean politics and should strive to be a force to assist in the cleansing of politics.

11. He should take an active interest in the public welfare in behalf of which he should ever stand ready to volunteer his special knowledge, skill and training for the use and benefit of mankind.

PART II.

Relations of the Engineer to Clients and Employers

1. The engineer should pursue his professional work in a spirit of strict fidelity and full loyalty to his clients and employers.

2. He should inform a client or employer or any business connections, interested or affiliations which might tend to influence his judgment or impair the disinterested quality of his services.

3. He should accept compensations for his services in connection with any work from one source only, except with the full knowledge and consent of all the interested parties.

4. He should regard and maintain as confidential any information obtained by him relating to the business affairs and technical methods or processes of a client or employer.

5. He should not engage in any outside work without the full knowledge and consent of his employer.

6. When connected with any work, he should not accept commissions, outside employment, promise of employment, or any other consideration from a contractor engaged upon that work.

7. He should have no business dealings or connections with any client of his employer without the full knowledge and approval of his employer.

8. He should entertain no offers of employment or other considerations from a third party, when such may in any way influence his actions or decisions with respect to the relations which may exist between such third party and the engineer's employer or client.

9. He should not accept commissions or other considerations for specifying or recommending supplies, equipment or service.

10. He should not split fees as commissions for securing work, nor work with other engineers on a split-fee basis unless assured that his client is not deceived thereby.

11. He should have no interest direct or indirect in any materials, supplies or equipment used in the construction work of his client or in any firms receiving contracts for his client's work without informing his client in advance of the nature of such interest and obtaining his sanction.

12. He should not engage in the independent practice of engineering without the knowledge and sanction of his employer, and under no circumstances should he compete with his employer on the basis of lower fees.

Not Paying Bonuses In San Francisco

Editor The Architect & Engineer,
San Francisco, Cal.

We desire to call your attention to your issue of April, blue insert page opposite Page 132, your footnote at the bottom stating that wages as noted in the various trades is the minimum wage, and making the further statement that "all trades in San Francisco are paying from $5.50 to $8.00 per day bonus."

We are handing you herewith not the minimum but the standard wage scale of the Builders' Exchange, and desire to call your attention to the fact that employers in San Francisco are not paying bonuses of from $.50 to $3.00 per day, except in a very few instances. Individual employers are paying extra good mechanics in their employ from whom they get value received, slight additions over the standard scale.

We are calling this matter to your attention at this time because it is so apparent that information of this kind, unless absolutely authentic, should not be made public. The pyramiding of building material costs as well as wages in a few of the crafts is so increasing the cost of building that owners feel disinclined to build and are holding back.

The Builders' Exchange is exerting every effort to stop the pyramiding of wages and also to decrease the cost of building materials to the end that the prosperity of San Francisco may not be impeded by curtailing the splendid building program we now have on hand.

Yours very truly,
W. H. GEORGE, President and Chairman,
Industrial Relations Committee.

Oakland Factory

Plans are being prepared by Architect William Knowles for a $200,000 reinforced concrete factory to be erected on 73rd avenue, East Oakland, for the Victor Talking Machine Company.

Development of Acid-Resisting Drain Pipe

By S. E. BRIGGS*

STRICTLY speaking, acid-proof iron drain pipe was not developed as such. It was simply placed on the market as an accepted product, after acid-proof iron had gone through all the stages of development in connection with the manufacture of chemical plant equipment.

About twelve years ago the requirements of the plants manufacturing nitric acid and sulphuric acid outgrew stoneware and the various types of lined pipe and castings. Improved processes made necessary a metal that would resist acids, could be machined, and embodied sufficient strength to stand low pressures and moderately high temperatures. Such an iron alloy was developed in England, another in Italy, and two in the United States—all at about the same period of time. The one developed here on the Pacific Coast is known under the trade name of Corrosiron, originated and manufactured by the Pacific Foundry Company of San Francisco.

In all these alloys, the chemical composition is similar, and they are generally spoken of as "high-silicon irons." The limits of the term "high silicon" are 12.5 per cent as a minimum and 14.0 per cent as a maximum. If the silicon content is lower than 12.5 per cent, the resistance to acids is too low for it to be marketed as an acid-resisting iron; above 14.0 per cent, the material becomes unnecessarily brittle for use in drain pipe or chemical castings. Manufacturers differ as to the amounts of carbon, manganese, phosphorous and sulphur which

* Pacific Foundry, San Francisco.

New Oakland Tribune building. Acid-proof drain lines from the engraving department
E. T. Foulkes, Architect

Showing type of High School in which acid-proof drain line is a necessity for permanency. Burlingame High School, San Mateo district. W. H. Weeks, Architect

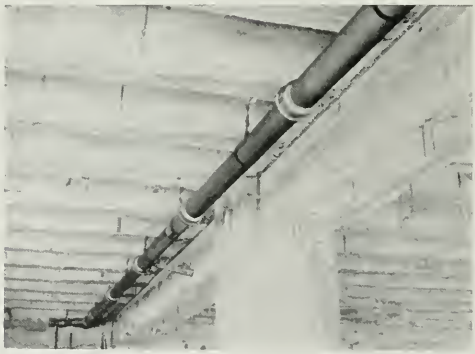
should be allowed. Except for carbon, it is safe to say that the other elements should be kept as low as possible. The empirical formula of this iron silicon alloy is not known, for it is a combination of many different iron silicides dissolved in iron.

The making of such an iron as described above is a rather fine metallurgical process. It is in the melting and pouring of the metal, and preparation of the moulds that the greatest skill is required. Melting is done in a cupola preferably, although an air furnace can be used.

High silicon iron has several peculiarities. The shrinkage is one quarter inch to the foot, about the same as brass. The moulds are opened while the metal is at red heat for at this temperature it is malleable. Special methods of molding and gating are required due to its high shrinkage and peculiar behavior in cooling. If castings are large, or if the cooling progresses unevenly, the pieces must be annealed by slow cooling in a closed pit to eliminate excessive strain and possible cracking.

All this development in a metallurgical way, took place up to a few years ago. The quality of castings improved and design of mechanical equipment became more practical. Consequently the use of the metal widened to include not only nitric and sulphuric acids, but acetic acid, mixed acids, chlorine, mine waters and dilute hydrochloric acid. It is manufactured in the shape of cascade pans, condenser sections, pumps, valves, kettles, electrodes, ejectors, pipe, fittings and various special castings.

Meantime acid drain lines of other materials continued to give trouble in such buildings as chemistry laboratories, engraving plants, hospitals and industrial buildings. Among the ordinary materials each had some fault which made it unsuitable for permanent structures. Replacements were frequent and costly and finally led to use of acid resisting iron as the best metal for permanent drain lines for handling mineral acids. This alloy has many advantages and of course, one or two faults. Its faults are evident; it is not malleable and is a little more brittle than cast iron. Consequently some care in handling and shipping is required. The metal is acid-resisting to a very high degree, as shown by the following Bureau of Standards tests. These were made upon pieces whose area is large compared to the weight. The minute loss in weights shown below is more than cut in half by the small area exposed to corrosion in a piece of drain pipe.



CORROSIRON DRAIN LINE IN PROCESS OF INSTALLATION.
NEW OAKLAND TRIBUNE BUILDING
E. T. Foulkes, Architect. Scott Co., Plumbers

The following tests were made on **Corrosiron** test pieces by the Bureau of Standards and the amount of weight lost is computed in grams per square centimeter. The pieces weighed about 28 grams each, the test period covered 120 days and the solutions were at room temperatures.

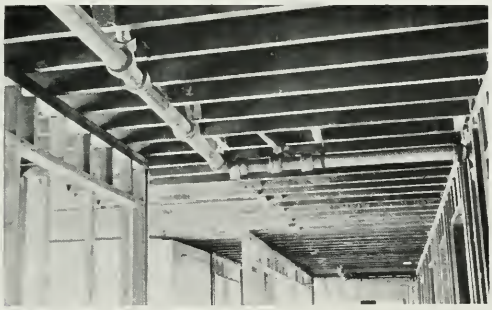
In making corrosion tests it will be noted that after the skin has been slightly corroded further action is retarded.

SOLUTION		Loss in gm./cm.2
Sulphuric Acid	95%	.00014
Sulphuric Acid	10%	.00808
Nitric Acid	70%	.00001
Nitric Acid	25%	No loss
Hydrochloric Acid	25%	.16664
Hydrochloric Acid	5%	.06885
Acetic Acid	99%	.00603
Phosphoric Acid	87%	.00007
Oxalic Acid	2.1%	.00018
Alum	15%	.00014
Picric Acid	9.1%	.00003
Copper Sulfate	25%	.00006
Ammonium Chloride	27%	.00519
Oleic Acid	Commercial Oleic	No loss
Pyrogallic Acid	31%	.00001

Such an acid drain line will stand a reasonable pressure; as much as 100 pounds per square inch where the joints are carefully caulked. The best joint is made by inserting lubricated pure asbestos ring packing in the bottom of the bell and backing up with lead. The pipe itself will not sag, but the joint is protected from strain by using hanger supports, as shown in the illustrations. This type of drain line gives complete sanitation. It allows no fumes to escape into the building; joints cannot open up by contraction and expansion.

Corrosiron drain pipe and fittings are made according to the standard of extra heavy soil pipe and consequently satisfy all plumbing codes. It can be used for a combination of acid and sewer drainage.

It is of interest to the engineer and the building public to know that this drain pipe has outgrown the classification of a special. The Pacific Foundry Company carries a complete stock of Corrosiron pipe and fittings and publishes a bulletin covering general specifications.



CORROSIRON DRAIN LINE IN VOCATIONAL HIGH SCHOOL, OAKLAND
C. W. Dickey, Architect. Scott Co., Plumbers

Is the Civil Engineering Profession Overcrowded

THERE are approximately 54,000 engineering students, of whom 16,000 are civil, 12,000 electrical, 12,000 mechanical, 5000 chemical, and 3000 mining students. The number of students taking architecture is about 1000, yet the total annual expenditures for buildings are four times as great as the total expenditures for public works and railways. Hence there are 64 times as many civil engineering students as architectural students per dollar of annual investment in their respective fields.

So far as practising the design of structures is concerned, not one in ten of these civil engineering students is likely to find permanent occupation. Yet our college courses in civil engineering still remain essentially courses for designers. The same holds true of nearly all engineering courses with the exception of courses in mining and chemical engineering. Agricultural engineering, it is true, is not a course in designing, but it numbers fewer than 500 students.

Professors of civil engineering should tell their students frankly that very few of them should plan to follow the profession with the object of becoming designers, and that still fewer can become consulting engineers—indeed, that the number of consultants is infinitesimal. Civil engineering students should be advised to plan early to undertake work that is seemingly not of an engineering nature at all. They should be told, however, that since engineering is the application of science, and since science exists or can be created in every branch of economic endeavor, the field for the engineer is as broad as human enterprise.—Engineering and Contracting.

COMPLETE ELECTRICAL HOME, SAN FRANCISCO
S. Heiman, Architect. Leonard and Holt, Builders

Electrical Home Is Not An Expensive Luxury

By G. H. OYER

CALIFORNIA'S 1923 Electrical Home campaign has been successfully launched. More than 30,000 people were conducted through the two homes which have been exhibited at Fresno and Long Beach during the past two months. According to officials of the California Electrical Co-operative Campaign, under whose auspices the homes are being exhibited, never before has such interest been shown by the public.

In selling property in Ingleside Terraces, a sub-division in San Francisco, the Leonard and Holt Company, realtors, in conjunction with the California Electrical Co-operative Campaign Committee, built a complete electrically equipped home which drew over 16,000 visitors during a period of two weeks. The house was designed by Architect S. Heiman for the Leonard and Holt Company. Specifications for wiring and fixtures were planned by the California Electrical Co-operative Campaign, which organization also furnished all the electrical appliances. MacRorie-McLaren Company executed the landscape gardening.

This modern electrical home demonstrates, as no other method could, how every facility may be employed for contributing to the comfort of the family and lightening the work of the housewife. There are in this eight-room residence thirty convenience outlets and seven heater outlets.

In its advertising, in its literature and in its sales arguments, the electrical industry assures the public that the electrical home is not an expensive luxury. Mr. H. L. Garbutt, who owns a completely electrified five-room bungalow in San Francisco, has kept a careful record of costs over a 3-year period and finds electricity to be economical. Current has been supplied for the past three years at the prevailing rates. During this period, the house has not been closed for more than three consecutive days. The meals prepared have averaged sixteen per week. Prior to December, 1921, heating was done with wood and coal (oak wood $20 per cord, soft coal $20 per ton) in a fireplace, together with two 500-watt portable heaters. Subsequently 7kw. in

KITCHEN, COMPLETE ELECTRICAL HOME, SAN FRANCISCO
Equipped with electric dish-washer, fan, and Westinghouse complete automatic electric range

DINING ROOM, COMPLETE ELECTRICAL HOME, SAN FRANCISCO
Dining table wired and provided with Duplex Convenient Outlet

LAUNDRY, COMPLETE ELECTRICAL HOME, SAN FRANCISCO
Equipped with Thor electric washing machine, ironer and electric water heater

air heaters were installed and the fireplace closed.

The prevailing rates for operating an 8-kw. electric range, air heaters, lights and a full and complete line of appliances have been 8 cents per kilo-watt-hour for the first 30 kw-hour, 3½ cents per kw-hour for the next 130 kw-hour, and 2 cents per kw-hour for all over 160 kw-hour. The rates for operating the 1,500-watt thermo-statically controlled water heater were $2.50 per month plus 3 mills per kilowatt-hour.

On the basis of these rates, it is seen that the costs for the various phases of electrical service in this five-room bungalow for a family of three were:—

Average cost per month for water heating	$4.11
Average cost for cooking, lighting and operating two 600-watt air heaters and a complete line of appliances	6.15
Average cost per month to operate 7-kw. in air heaters	3.62
Average cost per month for cooking, heating, lighting, washing, ironing and machine sewing	13.88

From this dollars and cents cost can be deducted the saving in time and labor, the cost of repainting the kitchen every year, and the multiplicity of conveniences which electricity brings about. The bother of carrying wood and coal, tending a furnace, disposing of ashes or cleaning a gas range, are entirely eliminated in an electrically equipped home. The saving in food values is an item to which no dollars and cents value can be readily assigned. The additional time which a housewife has placed at her disposal when a home is equipped with an electric range is a saving which does not appear in the above figures.

With actual cost figures such as those above, a belief in the various appliances based on actual experience, and the strong sales argument which the electrical idea lends itself to, men of the electrical industry, architects and builders, will find the task of electrifying every modern home less difficult.

There are today in the United States over 8,250,000 electrically wired homes and another million is being added each year.

Roger W. Babson, one of the leading economic analysts of the country, says that within five years the annual production of electrical appliances will exceed in value the output of automobiles.

18″ Below Water Level—

"The Only Dry Basement Around Here"

ARCHITECTS "Ye Planry", of Reno, Nevada, pinned their faith to Medusa Waterproofing for the basement concrete work in a building being erected at Sparks, Nevada. The floor level is 18″ below water-line, and the whole job had to be carried through under heavy pressure.

Medusa Waterproofing Powder, mixed with the cement as directed by us, proved thoroughly effective. The Consulting Architect writes:— "this basement is the only dry one in the locality, we understand."

Why take chances on underground concrete work getting water-logged, when just a little extra investment in Medusa Waterproofing —Powder or Paste— will keep the whole job damp-proof as long as the concrete stands? Only 2 pounds of Waterproofing per sack of cement, or 8 pounds per barrel, are required to keep all moisture out *permanently.*

As you will see by reference to our catalogue in "Sweet's," pages 94-95 and 316-318, Medusa Waterproofing may be added to any standard portland cement while mixing. Better still, if within shipping range, Architects may specify Medusa *Waterproofed* Gray Cement, which contains the correct amount of Medusa Waterproofing added to the cement and thoroughly ground in during process of manufacture—saving all trouble in proportioning and mixing.

Booklets containing detailed specifications, interesting illustrations, etc., will be gladly sent upon request.

THE SANDUSKY CEMENT CO. Dept. P, Cleveland, Ohio

Medusa Stainless White Cement—Plain and Waterproofed—and Medusa Waterproofing are carried in stock and sold by leading building-supply dealers in California, Oregon and Washington.

MEDUSA

WATERPROOFING

Powder Paste

Westinghouse Earns Twice Its Dividends

The net income of the Westinghouse Electric & Manufacturing Company for the year ending March 31, 1923, was $12,263,485 as shown by the company's annual report. The dividend requirements were $6.033,428, so that over twice this amount was earned and more than six million dollars added to the surplus. Gross sales for the year were $125,000,000, which represents an increase of $25,000,000 over the sales of last year. The cash position of the company is a strong one, the current assets totalling over $106,000,000, and the current liabilities less than $17,000,000.

"The bookings of new business steadily increased during the year," states Mr. Guy E. Tripp, Chairman of the Board of Directors, "and the value of unfilled orders at the close of the year was $61,914,237, as compared with $50,740,696 at the close of the previous year.

"The relations between the company and its employees are satisfactory. Under the company's insurance and savings plan, two thirds of the employees owned insurance of $500 or more each. The deposits by the employees in the Savings Fund are accumulating at a rate in excess of $100,000 a month, and the total savings to date are in excess of $2,000,000. The savings are invested for the benefit of the employees and are not used in any way in the company's operations."

Big Increase in Cement Shipments

Production of Portland cement in April was over 11,350,000 barrels, according to figures just compiled by the United States Geological Survey. This represents an increase of more than 2,000,000 barrels, or approximately 23 per cent over last year's April production and is the largest quantity ever manufactured during that month. Production for the first four months of this year exceeded 37,000,000 barrels, as compared with about 27,000,000 barrels in 1920, the best previous record for that period.

April shipments of cement from the mills were also unusually heavy for this season of the year and nearly reached the 13,000,000 barrel mark—an increase of 50 per cent over April, 1922. For the first four months of 1923, shipments exceeded 34,600,000 barrels as compared with 22,700,000 barrels the 1919-1923 five year average for the period.

Stocks of finished cement in manufacturers' hands at the end of April this year were 11,450,000 barrels as compared with an average of about 12,200,000 barrels for the five-year period, 1919-1923. Taking into consideration the unprecedented early season demand which, since January 1, has absorved over 12,000,000 barrels more than ever before, manufacturers have made a remarkable record in keeping pace with the situation.

Airdry Expands on the Coast

Because of the increasing demand for Airdry "The Electric Towel" and the desire to give architects and builders better facilities for service and information, three new Airdry offices have been added to the Coast chain. They are located in Los Angeles, Portland and Seattle, and these, in conjunction with the present San Francisco and Sacramento offices, make a total of five centers where Airdry data may be obtained.

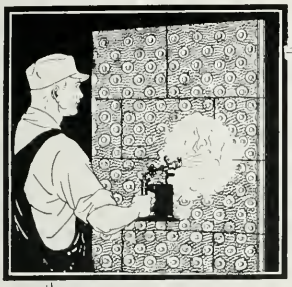
Inasmuch as this new expansion is Coast-wide, the old name, "Airdry Co. of California" is now obsolete and the company will be hereafter known as The Airdry Electric Service Co., with main headquarters in the Rialto building, San Francisco.

It has been interesting to watch the development of this product on the Coast. Just as in other parts of America, Airdry has been specified and installed in many of the most prominent buildings, banks, schools, universities and stores. The University of California is one of the Coast's largest users of Airdry and is gradually changing its entire equipment.

Another recent installation was in the new Los Angeles Bank of Italy building. This modern twelve story structure was completely equipped with wall-model Airdry's and opened its doors only last month, with a continuous towel service at the command of tenant and employee for all time. This was the fifth installation in the Bank of Italy chain.

Airdry, "The Electric Towel," is not a towel at all, but a simple electric appliance which dries the skin nature's way, by evaporating moisture. No towels are necessary and of course, there is no laundry expense. It serves not only as a preventative of chapped hands, but as an actual cure for chapped and sore skins. The warm air penetrates so deeply into the pores that it brings out the natural oil of the skin, leaving it soft and velvety. When the hands are seen under the microscope after using Airdry, it is plainly observed that they are smooth and natural in color.

Through the courtesy of the executive secretary of the Oakland Board of Public Works, the writer had the privilege of examining a series of reply letters answering queries addressed to many users of Airdry. Among the many was a letter from the Superintendent of Buildings of Seattle. This city experimented for thirty days with type I Airdry's in its largest Comfort Station, which has a patronage of approximately 100,000 persons a month. To quote from



—Moistureproof
—Soundproof
—Fireproof

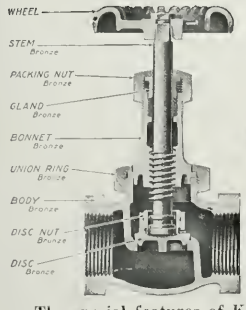
Buttonlath

The Modern Economy Lath

Be sure Buttonlath is mentioned by name in your specifications

Buttonlath Manufacturing Co.
207 Balboa Building San Francisco

What is your valve standard?



Most any valve will work well when new, but it takes a high-grade product to stand up for a long period of years and to continue to give one hundred per cent efficient service. That's why architects, engineers and contractors should safeguard the future interests of clients and customers by specifying

KENNEDY

In this way their specification carries with it the protection which the KENNEDY name and KENNEDY guarantee insure to valve users. For 44 years valve satisfaction has been the one object of the KENNEDY organization, and the improvements and developments which mark all valves bearing their trademark are sufficient proof of the success of their efforts.

The special features of Kennedy Valves are given in our latest catalog. Send for copy and keep it handy.

THE KENNEDY VALVE MFG. CO.

ELMIRA, N. Y.

Branch Offices and Warehouses:
NEW YORK, 95 John St.
SAN FRANCISCO, 23-25 Minna St.
BOSTON, 47 India St.
CHICAGO, 228 N. Jefferson St.

Sales Offices:
Salt Lake City, 503 Dooley Bldg.
El Paso, 704 Two Republics Bldg.
Seattle, L. C. Smith Bldg.

that letter: "Results were so satisfactory that we discarded towels entirely and installed three Airdry's in the men's division and two in the women's The cost for the five machines for March, April and May 1922, has averaged only $3.89 a month. Since we are using from ten to twelve cases of towels a month (viz., approximately $100 to $120) you can readily find the saving effected."

Another, and even more effective test was made by a San Francisco department store. A complete installation of Airdry's was made throughout this large store, and executives of this organization equipped a machine with seperate counting and current meters, starting a thirty-day test for their own information. Compilations showed that in the thirty day period there were 5452 drying operations, at a total running cost of ten cents a day. From this test it can be readily seen that the economical advantages of the new electrical dryer are of importance. Its first cost is practically the last, inasmuch as the expense of operation is so small.

Complete sanitation, helpful cleanliness and continuous service, however, are its strongest points. Airdry is placed in instant operation by slight pressure of the foot pedal. The air that dries one pair of hands is not used again; infectious diseases can not be carried from one person to another. Airdry is made in two models—a pedestal for immediate installation, and a recessed wall-model for new construction. To lessen costs and assure proper installation of wall-model Airdrys, it should be included in the architect's original specifications. Complete data and specifications may be obtained from any of the five Airdry offices at any time.

Mr. E. V. Eskensen Doubly Honored

At the annual meeting of the National Terra Cotta Society at Atlantic City, N. J., April 21st, Mr. E. V. Eskesen, president of the New Jersey Terra Cotta Company, was elected president of the society for the ensuing year. The remaining officers are: Mr. O. W. Ketcham, first vice-president; Mr. Adolph Hottinger, second vice-president; Mr. Walter Geer, Jr., treasurer; and Mr. F. S. Laurence, executive secretary.

Mr. Eskesen was knighted by the King of Denmark April 30th, 1923, being decorated with the Order of Danebrog in recognition of his services in promoting the common interests of the Danish-American peoples, especially in the interchange of university scholarships, etc., between the two countries.

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Field of the Contractor

Contractors' Overhead*

Its Disregard Leads to Bankruptcy

By GERHARDT F. MEYNE

ASIDE from the actual construction of the building, the preparation of estimates is, of course, one of the most important functions in the contractors' business, although sometimes it is merely looked upon as a necessary evil. Builders who make the mistake in considering that estimating is a necessary evil, overlook the fact that it is a most important factor toward making the business a success or a failure.

It is needless to say that proper listing of materials is essential. The methods used by so many builders in lump estimates is a very serious mistake, and usually ends with a contractor going to the "great beyond" without leaving any visible means of support for his family, after a life of slavery.

Managers of bonding companies are very careful to scrutinize business methods of a contractor or building corporation before they are willing to furnish a surety bond. It is not often that the very responsible builder, with a good reputation and long record of fair dealings, is requested to furnish a bond. Architects, engineers, material dealers and owners usually know something about the business methods of a contractor, and, therefore, the bonding companies are usually only asked to bond the low or irresponsible bidder.

The first question the companies must have answered is something about the builder requesting the bond; whether or not he understands his business thoroughly—whether or not he is capable of preparing a correct estimate himself. They also ask about the figures of his estimator or other help, and if the builder is competent to check them and has good judgment.

In the second place, the bonding company is most anxious to know about the general reputation of the builder, his honesty in meeting his financial obligations, and his reputation among those with whom he does business, such as sub-contractors and material men, and how he stands with his colleagues in the business.

Thirdly, one of the prime requisites of a builder when he requires a bond is, of course, his financial ability. Not only is his capital scrutinized, but his business efficiency and general executive ability. Needless to say, it creates a bad impression when builders appear in the office of the bonding company with their figures on the back of an envelope. Probably they have cubed a job, or, worse yet, have taken some figures that some architect or owner has told them they could get the job done for. Needless to say, the man with a good appearing sheet, his items all properly itemized, showing that the plans and specifications have been carefully surveyed, will have considerably less trouble to be bonded than the sloth.

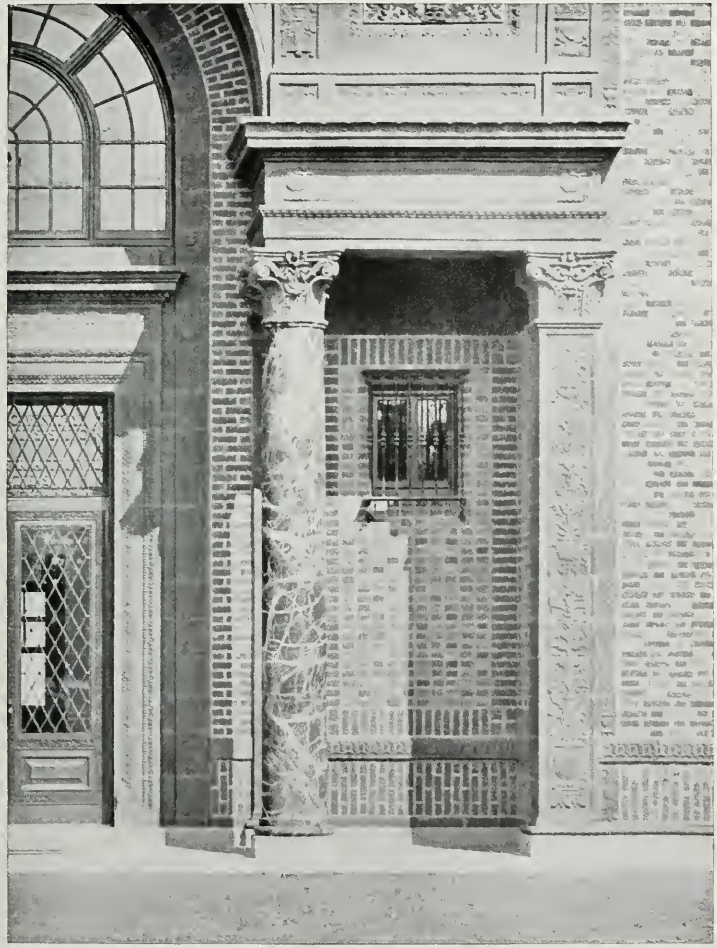
The item of overhead expense is one that has long been neglected by the smaller builders, but it is an item of such considerable importance that it should have the most careful consideration of every builder, little or big. I caution and admonish, as well as counsel, advise and command, that out of every building operation undertaken you get back in money at least the actual cost of its complete production, plus the overhead.

The item of profit is one which your own avariciousness demands, or the competition of colleagues permits, or your conscience will allow you to take, but you are at least entitled to all the money you put into an operation. This money, as previously stated, is the cost of labor and materials, permits, liability insurance, bonds, owners' contingency insurance, fire insurance, miscellaneous contingency, such as cutting for other trades, removing of debris, field overhead and general overhead.

I will come directly to the explanation of what I mean by field overhead and general or administrative overhead. When the estimate has been made, and after the cost of the building has been totalled, a certain percentage for overhead should be allowed. This is sometimes called the cost of doing business. This percentage is calculated in various ways, but it is usually determined by each contractor according to the size of his operations and personal efforts.

Administrative overhead or expense is that charge which cannot be directly

*Abstracts of an address before the Convention of the Associated Building Contractors of Illinois.



Detail of Administration Building, Essex County Park Commissioners, Newark, N.J. H. Van Buren Magonigle, Architect

A FINE example of the adaptability of face brick to the architect's purpose. The brickwork in Flemish and Checker Bonds makes a pleasing harmony with the marble column and the terra cotta pilaster. "Architectural Details in Brickwork" comprises one hundred examples of artistic brickwork. The plates, issued in three series, each in an enclosed folder, ready for filing, will be sent to any architect requesting them on his office stationery. Address, American Face Brick Association, 1759 Peoples Life Building, Chicago, Illinois.

charged to a project or job, and should be again divided into two classes—fixed office expense and miscellaneous expense. Fixed office expense consists of salaries to executives (meaning that the builder should put himself on the payroll), estimators and clerks, rents, plant depreciation, furniture and fixture depreciation, interest on equipment, cost keeping and the helpers involved therein, bookkeeping and its involved cost, yard men and tool men. Miscellaneous expense is, of course, invisible, and is usually composed of stationery, billheads, advertising, interest on borrowed money, office supplies, telephone, telegraph, postage, business travel, automobile upkeep, taxi fares, charity, business insurance, legal expense, tool and equipment maintenance, team account, etc.

Field overhead, as I regard it, should also be divided into two classes—nonproductive labor and its kindred expense and such invisible overhead as accrues on the job whether or no. Sometimes it cannot be avoided, no matter how much endeavor or effort the builder may put forth to stop it.

Coming back to field overhead of the first class, which we shall call the nonproductive field labor overhead, this is made up of superintendents' salaries or wages for the time of timekeepers and material clerk, also the expense of equipment, rentals, setting up equipment, removing and putting equipment in good order and hauling it back to the yards, temporary offices, tool shed, cement shed, temporary power and light, temporary enclosures and fences, sidewalk protection, water connection, tarpaulins, machinery protection equipment, hauling, etc. (Offices, sheds, etc., should be considered cost.)

Invisible overhead arises on a job or project, and is very often incurred by negligence, sometimes sabotage. More often the best efforts cannot prevent it, and it should be taken into consideration when making up an estimate.

Lost time is the bottomless pit into which more money than can be estimated has been dumped by contractors. A day free from delays will produce twice as much as an average day. To attain the ideal production means cost keeping and system—hence overhead. Invisible overhead is usually composed of more or less the following items: Interference of inclement weather, time lost by breakdowns, time lost by shifting plants, time lost waiting for other parts of the project to be made ready, time lost waiting for material, time lost by shifting men to other jobs, efficiency lost by putting on new men, crews too small to be effective in relation to superintendents, foremen, etc. This last item was the case with a certain bricklaying and plastering situation last summer. The builder often had his foremen working with two or three bricklayers and as many laborers. Could he have obtained 20 bricklayers, his overhead would have been the same per diem. The importance of including this invisible expense in the estimate as a contingency or overhead is readily apparent.

The making up of overhead is, of course, not alike in every office, but if the gross expense for the year, including the contractor's own salary, is $15,000 and the business amounts to $300,000 per year, evidently the overhead is 5 per cent. There are a number of books of more or less value written on the subject of "Cost Keeping Systems" on construction work. Nevertheless, the builder neglects the opportunity of familiarizing himself with and studying the systems offered, and will continue his lamentations over unfair competition and his complaints about the contracting business being the worst business on the earth to use up men and money. In going through the State of Illinois last year, I had many talks with former contractors, and realized that they were very quick to criticize and damn their colleagues in the same town and nearby towns, but that they had little understandings of the real system of the business. They, as a rule, had been excellent mechanics and sometimes foremen, and had been content to let their laurels rest on these achievements. I also found contractors unwilling to sit down and talk over operations and costs with their competitors, and to generally organize for their own good.

Taking the first step in system is to map out the object desired and also to map out the results to be obtained and preferably always on paper. It is astonishing what cold figures, on paper, will analyze after a job has been completed. System includes the keeping of records and costs, such as bookkeeping, filing system and estimating. The contractor sometimes objects to a system and calls it red tape, but, somehow or other, the operators who have surrounded themselves with some red tape do not seem to make assignments in bankruptcy as often as the man who will have none of it. The small contractor objects to system because it takes up so much of his time. If the small contractor's business has grown to such an extent that he must work more than ten hours to keep abreast with his work, then it is absolutely necessary for him to acquire some help, so that he may keep his business records correct as to the income and the outgo of money, the records of his banking accounts, the condition of his equipment and tools, etc. He then at once acquires overhead in addition to his own salary. As to what a builder's salary should be, his competi-

tor, his conscience and his avariciousness will have to be his guide.

We have been discussing the overhead of the general contractor, usually known as the carpenter or mason contractor. His overhead is, of course, considerably less than the overhead of, for example, the plumbing contractor or the painting contractor. The average overhead of the painting contractor is approximately 20 per cent, consisting of the usual fixed expenses and miscellaneous expenses, use and depreciation of brushes, paint pots, step ladders, drop cloths, jack ladders, small cloths, auto trucks, etc. It has been found that 22½ per cent is an average overhead for the plumber, and it ranges from 18 to 20 per cent in small establishments where the proprietor puts in his time in the evening, making out calculations, bills, rent, use of tools, etc.

Just one word about cost keeping and bookkeeping. The psychology of having a cost keeping system tends to bring out efficiency in one's crews, and if employed for no other reason, would pay for itself on each job, whether cost-plus or straight contract. An owner who objects to paying for a cost-keeping system, having a cost-plus job, is cheating himself, and is very apt to have surprises before the job is done, and, quite often, an existing friendship is broken up by ugly charges.

Uncle Sam, in his desire for money, has foisted upon us the income tax, and has taught us all how to keep books or go to jail. But I would like to caution contractors to constantly urge their bookkeepers to have their bills ready and get their accounts rendered, and insist upon payments. The man who has his accounts up to the minute and is up on his collections seldom has to go to court or employ the mechanics' lien law. Red tape has saved him a loss on cost-plus work. Where it is known that the contractor has a real system or an overhead which shows up every item of cost on the project, he will have no trouble with his statements, and 90 per cent of the time Mr. Owner will never send in an auditor. Again I caution you that the cost of the building is made up of its labor, material, its various contingencies, and OVERHEAD.

Seven-Story Warehouse

The Montgomery Ward Company will build a seven-story reinforced concrete warehouse at 29th avenue and East 14th street, Oakland, from plans by the company's own architect, Mr. A. McAuley.

Fresno School Building

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Built-In Fixture Company Grows

A new fireproof concrete factory with an area of 17,000 square feet of floor space is being erected by the Built-In Fixture Company on a spur track site approximating one and a half acres at Parker street and San Pablo avenue, Berkeley. As soon as the building is completed, the company will move its machinery and equipment from its present location at 1911 San Pablo avenue. Considerable new equipment will also be installed. Site and building will cost $35,000.

The building of the new plant is an indication of the rapid growth of this company, which was incorporated a few years ago and has expanded into a coastwise and semi-national business. It manufactures a patented line of built-in fixtures, such as breakfast equipment, ironing boards, wall tables, wall seats, and similar folding devices. All are built on a standardized basis, and the principle of unit construction is employed just as it is in a sectional bookcase. An entire kitchen can be furnished with the fixtures. They are sold under the trade name of Peerless.

A connection with the Hoosier Manufacturing Co. enables the local concern to market much of its output through the Hoosier selling organization, and a series of units is made to surround a specially constructed Hoosier cabinet.

Agencies have been established in all of the Coast states and in Texas, and a considerable number of fixtures have been shipped to easterners who are anxious for California home-building ideas. The company believes that a very extensive market awaits in this expansion.

Officers of the company are: Messrs. O. K. Brown, president; Geo. Reiss, vice-president; Ray B. Cox, secretary-manager; Alex. Hejjas, treasurer. These with the following compose the board of directors: D. E. Sutherlund, E. E. Northrup and C. R. Cox.

Central Electric In New Home

The Central Electric Company has moved into its new home at 177-179 Minna street, San Francisco, and besides having very attractive executive offices, the company has splendid storage space for its stock of electrical supplies and equipment. The Central Electric Company has been in business constantly since 1904, with Mr. Joseph M. Carlson and Mr. David M. Carlson as its principals. Some of the more important installations executed by this company are the Hotel Whitcomb, Flood building, St. Patrick's Church, Hebrew Home for the Aged and Disabled, thirteen-story Alexander building, National Carbon Company's plant, Children's Hospital, all in San Francisco, and the Capitol National Bank in Sacramento.

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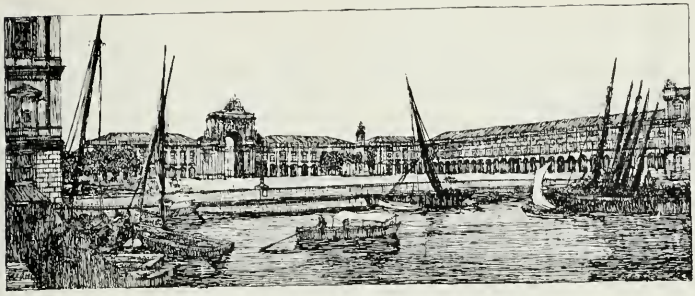

PRAÇO DO COMMERCIO, LISBON, PORTUGAL
Illustration in Civic Art, from a drawing by Franz Herding

BOOK REVIEWS

Edited by
CHARLES PETER WEEKS

"Civic Art," by Dr. Werner Hegeman and Elbert Peets. Architectural Book Publishing Company, New York, N.Y.

The architectural profession, not only of America, but the world over (the book is now being translated into four different languages), can congratulate itself on "Civic Art," recently being published in New York. This book is meeting that long-felt need for a collection of city planning material of immediate interest to the architectural designer.

It is a volume of an apparently unlimited source of information and inspiration to any one whose interest in the profession extends beyond the building line of the individual house. It is a book which city officials, laymen that are connected with public work or large building programmes should peruse and digest, because it is devoted to city planning as an ART, it treats comprehensively civic centers and plazas; the placing and setting of public buildings, theaters, churches and skyscrapers; the relation between the plans of house, garden and city; the design of streets and street systems, garden suburbs, subdivisions, and whole cities conceived as esthetic ensembles.

The twelve hundred illustrations, comprising plans, reconstructions, photographs, bird's-eye views, and diagrams of executed and proposed work, cover the great periods of antiquity, the Middle Ages, and especially of the Renaissance, including the important contributions made to the development of civic design by the Colonial period in America. The book is particularly rich in illustrations of French plazas designed during the great period from 1600 to 1760, and covers in detail the revival of civic art in Europe and in America, including the most recent industrial housing schemes as well as the most highly developed city and suburban residential districts.

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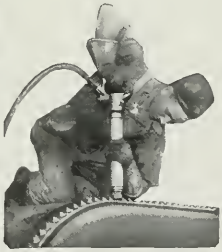

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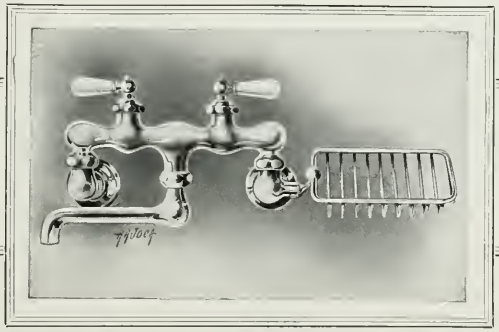

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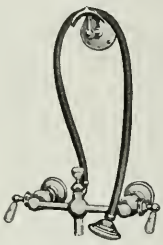

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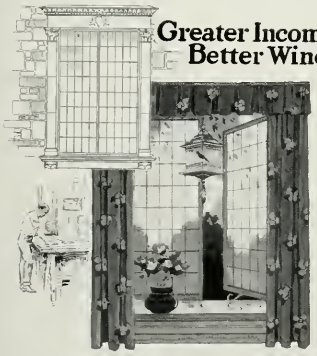

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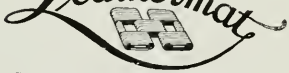

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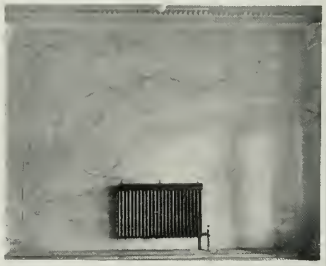

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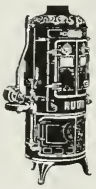

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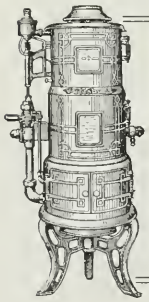

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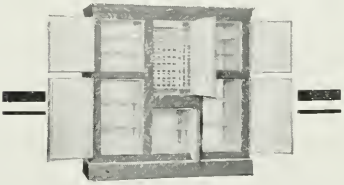

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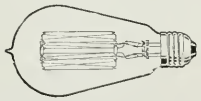

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A. R. SMITH, Construction Engineering Dept., GENERAL ELECTRIC CO. of New York, on page 724 in the company's official "GENERAL ELECTRIC REVIEW," describes the use of MIDWEST UNIT AIR FILTERS for the protection of TURBO GENERATORS

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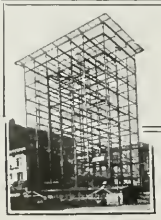

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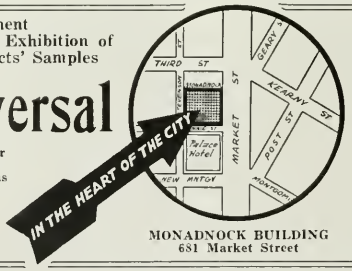

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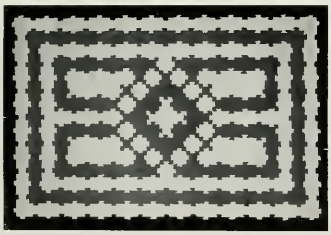

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